Auswirkungen verschiedener Formen der Kindesmisshandlung auf die depressive Symptomatik im Erwachsenenalter:

Die Rolle potenzieller Mechanismen

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‘‘Safety and security don’t just happen,

they are the result of collective consensus and public investment.

We owe our children, the most vulnerable citizens in our society,

a life free of violence and fear.’’

Nelson Mandela

Danke!

Die Danksagung ist nicht Teil der Veröffentlichung.

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ABBILDUNGSVERZEICHNIS:

1 Zusammenfassung und Abstract

1.1 Zusammenfassung

Zahlreiche Studien zeigen, dass Kindesmisshandlung ein bedeutender Risikofaktor für die Entstehung verschiedenster psychischer Störungen, wie auch der Depression ist (Green et al., 2010; Nelson, Klumparendt, Doebler, & Ehring, 2017). Depressive Patient*innen, die Kindesmisshandlung ausgesetzt waren, weisen zudem einen schwereren Krankheitsverlauf und eine höhere Therapieresistenz auf (Nelson et al., 2017). Daher ist es von hoher Relevanz, Zusammenhänge und Mechanismen zwischen Kindesmisshandlung und Depressionen genauer zu verstehen, um langfristig diese Patient*innen effektiver unterstützen zu können.

Wenig ist bisher jedoch bekannt über differentielle Auswirkungen verschiedener Misshandlungsformen auf psychische Störungen im Erwachsenenalter. In der vorliegenden Dissertation werden daher Auswirkungen der fünf spezifischen Misshandlungsformen emotionaler Missbrauch, emotionale Vernachlässigung, sexueller Missbrauch, körperlicher Missbrauch und körperliche Vernachlässigung getrennt betrachtet (Ziel 1). Dies ist besonders relevant, da der Fokus früherer Forschung hauptsächlich auf sexuellem und körperlichem Missbrauch lag (Stoltenborgh, Bakermans-Kranenburg, Alink, & Van Ijzendoorn, 2015). Aktuelle Forschung weist jedoch darauf hin, dass gerade die emotionalen Misshandlungsformen besonders prävalent sind und langfristig mindestens vergleichbar gravierende Folgen haben (Nelson et al., 2017; Ross, Kaminski, & Herrington, 2019). Auch die zugrundeliegenden Mechanismen des Effektes von Kindesmisshandlung auf die Entstehung und Aufrechterhaltung depressiver Symptome sind bisher kaum verstanden. Basierend auf klinischen Theorien werden daher der Bindungsstil, die soziale Kognition, interpersonellen Probleme, Emotionsregulation und das Selbstmitgefühl als potenzielle Mechanismen in der vorliegenden Dissertation untersucht (Ziel 2). Kenntnisse über mögliche psychologische Mechanismen sind insbesondere relevant, da sie wichtige Ansatzpunkte für Präventionsprogramme und Psychotherapien darstellen. Die Theorie des *Cognitive Behavioral Analysis System of Psychotherapy* (CBASP), einem Psychotherapieansatz der speziell auf Patient*innen mit einer persistierend depressiven Störung (PDD) zugeschnitten ist, geht davon aus, dass Patient*innen mit einer PDD besonders häufig Kindesmisshandlung ausgesetzt waren und daraus resultierend Veränderungen in der sozialen Kognition und ihrem interpersonellen Verhalten aufweisen (McCullough, 2003). Da diese Annahmen des CBASP-Ansatzes größtenteils auf klinischen Erfahrungen basieren, bedarf es weiterer empirischer Prüfungen dieser Hypothesen. Daher besteht das 3. Ziel dieser Arbeit darin, Unterschiede zwischen Patient*innen mit PDD und Patient*innen mit episodischer

[1]Im Rahmen der vorliegenden Arbeit wurde versucht, eine geschlechtsneutrale Sprache zu verwenden, indem beispielsweise von „Patient*innen“ gesprochen wird. An Stellen, an denen dies nicht möglich war sei jedoch ausdrücklich darauf hingewiesen, dass immer alle Geschlechter eingeschlossen sind.

Depression (ED) hinsichtlich Kindesmisshandlung und verschiedenen Facetten der sozialen Kognition zu untersuchen.

Diese drei Ziele werden durch vier Studien, welche die kumulative Dissertation bilden, adressiert. Die Daten der Studien I und II stammen aus dem Teilprojekt 1 der DFG-Forschergruppe 2107. Die Daten der Studie III wurden in einer psychiatrischen und einer psychosomatischen Klinik und in einer psychotherapeutischen Ambulanz erhoben. Studie IV erfolgte im Rahmen des *CBASPersonalized* Projektes zur Evaluation eines sechswöchigen stationären Behandlungsprogramms in einer psychosomatischen Klinik.

In Studie I wurden die Prävalenzen der Misshandlungsformen bei Patient*innen mit Depression (*n* = 604), Schizophrenie (*n* = 107), Bipolarer Störung (*n* = 103) und bei gesunden Proband*innen (*n* = 715) verglichen. Emotionaler Missbrauch, emotionale Vernachlässigung und körperliche Vernachlässigung wurden in allen Gruppen am häufigsten berichtet. Die drei Patient*innengruppen unterschieden sich untereinander nicht in den Misshandlungsformen, berichteten aber alle Formen häufiger als gesunde Proband*innen. Die Subgruppe der Patient*innen mit PDD (*n* = 65) war von allen Misshandlungsformen noch einmal häufiger betroffen als andere Patient*innen. Insgesamt waren in der gesunden Gruppe ca. 15%, bei Patient*innen mit Schizophrenie, Bipolarer Störung oder Depression jeweils ca. 57% und in der Subgruppe der Patient*innen mit PDD ca. 75% von Kindesmisshandlung betroffen. Angst- und Depressionssymptome in der zusammengefassten Patient*innenstichprobe wurden insbesondere durch emotionalen Missbrauch und emotionale Vernachlässigung vorhergesagt.

Studie II untersuchte den Bindungsstil als möglichen Mediator des Effektes von Kindesmisshandlung auf die depressive Symptomschwere bei Patient*innen mit Depression (*n* = 580). Die Ergebnisse wiesen darauf hin, dass Bindung insbesondere den Effekt von emotionaler Misshandlung auf die Symptomschwere mediierte. Hierbei zeigte sich spezifisch ein indirekter Effekt von emotionalem Missbrauch über Bindungs-Angst auf die Depressionsschwere und von emotionaler Vernachlässigung über Bindungs-Vermeidung auf die Depressionsschwere. Auch das angenommene Modell einer sequenziellen Mediation von Kindesmisshandlung über unsichere Bindung und verringerte soziale Unterstützung auf die Depressionsschwere konnte gestützt werden.

In Studie III wurden Patient*innen mit ED (*n* = 38) und PDD (*n* = 34) sowie gesunde Kontrollproband*innen (*n* = 39) in verschiedenen Facetten der sozialen Kognition und im Auftreten interpersoneller Probleme verglichen. Zudem wurde untersucht, ob diese Unterschiede auf Erfahrungen von Kindesmisshandlung zurückzuführen sind. Patient*innen mit PDD berichteten häufiger Erfahrungen von Kindesmisshandlung und einen höheren empathischen Distress als die Vergleichsgruppen. Beide Patient*innengruppen berichteten zudem stärkere interpersonelle Probleme. Dagegen zeigten sich

keine Unterschiede in der affektiven Theory of Mind. Der Effekt von Kindesmisshandlung auf die Depressionsschwere wurde über interpersonelle Probleme und empathischen Distress mediiert.

In Studie IV wurden interpersonelle Probleme, empathischer Distress, Emotionsregulation, und Selbstmitgefühl als Mediatoren des Zusammenhanges zwischen Kindesmisshandlungsformen und Schwere der Depression bei Patient*innen mit einer PDD (*N* = 96) untersucht. Emotionaler Missbrauch sagte ein geringeres Selbstmitgefühl und stärkere interpersonelle Probleme vorher. Die Annahme eines sequenziellen indirekten Pfades von emotionalem Missbrauch über verringertes Selbstmitgefühl und stärkere Emotionsregulations-Schwierigkeiten auf die Depressionsschwere konnte gestützt werden. Zudem zeigte sich die Mediation über interpersonelle Probleme. Veränderungen der interpersonellen Probleme, der Emotionsregulation und des Selbstmitgefühls hingen mit Veränderungen im Schweregrad der Depression über den Therapieverlauf zusammen.

Einige Limitationen sollten bei der Interpretation der berichteten Ergebnisse berücksichtigt werden. Insbesondere sind die querschnittlichen Designs der Studien I bis III zu nennen, wodurch Rückschlüsse auf die Kausalität nicht möglich sind. Zudem wird die retrospektive Erfassung der Kindesmisshandlung im Selbstbericht in allen vier Studien als Limitation diskutiert.

Die hohe Prävalenz von Kindesmisshandlung in verschiedenen Patient*innengruppen – und insbesondere bei Patient*innen mit PDD – betont die enorme Bedeutung einer Prävention von Kindesmisshandlung, um Leid über die gesamte Lebensspanne zu reduzieren. Die Ergebnisse verdeutlichen darüber hinaus, dass vor allem emotionaler Missbrauch und emotionale Vernachlässigung – Misshandlungsformen, die in der Praxis häufig übersehen und in der Forschung wenig untersucht wurden – mit der Depressionssymptomatik zusammenhängen und Auswirkungen auf verschiedene psychische Fertigkeiten haben. Insbesondere eine Förderung interpersoneller Kompetenzen, des Selbstmitgefühls und der Emotionsregulation scheinen vielversprechende Ansatzpunkte zu sein, um bei Patient*innen mit PDD und Erfahrungen von Kindesmisshandlung Verbesserungen der depressiven Symptomatik zu erreichen.

1.2 Abstract

Numerous studies have shown that childhood maltreatment is an important risk factor for the development of various mental disorders, including depression (Green et al., 2010; Nelson et al., 2017). Depressed patients who were exposed to childhood maltreatment also show a more severe course of the disease and a higher treatment-resistance (Nelson et al., 2017). Therefore, it is of high relevance to understand the connections and mechanisms between childhood maltreatment and depression to be able to support this patient group more effectively in the long term.

However, little is known about the differential effects of different types of child abuse and neglect on mental disorders in adulthood. Therefore, in this dissertation, the effects of the five specific types of childhood maltreatment - emotional abuse, emotional neglect, sexual abuse, physical abuse, and physical neglect - are considered separately (aim 1). This is particularly relevant since the focus of previous research was mainly on sexual and physical abuse (Stoltenborgh et al., 2015). However, current research indicates that emotional maltreatment is particularly prevalent and could have at least comparable consequences in the long run (e.g. Nelson et al., 2017; Ross et al., 2019). The underlying mechanisms of the effect of childhood maltreatment on the development and maintenance of depressive symptoms are also poorly understood. Therefore, based on clinical theories, attachment style, social cognition, interpersonal problems, emotion regulation, and self-compassion are investigated as potential mechanisms in the present dissertation (aim 2). Knowledge of potential psychological mechanisms is particularly relevant as they represent important starting points for prevention programs and therapies. The theory of the *Cognitive Behavioral Analysis System of Psychotherapy* (CBASP), a psychotherapy approach specifically tailored to patients with a persistent depressive disorder (PDD), also assumes that patients with PDD were particularly often exposed to childhood maltreatment and, as a result, exhibit changes in social cognition and their interpersonal behavior (McCullough, 2003). Since the assumptions of the CBASP approach are largely based on clinical experience, these hypotheses need to be further empirically tested. Therefore, the third aim of this work is to investigate differences between patients with PDD and patients with episodic depression (ED).

These three research aims are addressed by four studies that form the cumulative dissertation. Data of studies I and II was drawn from the subproject 1 of the DFG Research Group 2107. Data of study III was collected in a psychiatric inpatient clinic, a psychosomatic inpatient clinic, and in a psychotherapeutic outpatient clinic. Study IV was conducted as part of the *CBASPersonalized* project to evaluate a six-week inpatient treatment program in a psychosomatic inpatient clinic.

Study I compared the prevalence of childhood maltreatment types in patients with depression (*n* = 604), schizophrenia (*n* = 107), bipolar disorder (*n* = 103), and in healthy control participants (*n* = 715). Emotional abuse, emotional neglect, and physical neglect were the most frequently reported types in all groups. The three patient groups did not differ from each other in any childhood maltreatment type but reported all types more frequently than the healthy control participants. The subgroup of patients with PDD (*n* = 65) reported all types of childhood maltreatment even more often than other patients. In total, about 15% of the healthy control subjects, about 57% of the patients with schizophrenia, bipolar disorder, or depression, and about 75% of the subgroup of patients with PDD were affected by childhood maltreatment. Anxiety and depression symptoms in the pooled patient sample were predicted by emotional abuse and emotional neglect.

Study II examined the attachment style as a possible mediator of the effect of childhood maltreatment on depression severity in patients with depression (*n* = 580). It was shown that attachment mediated the effect of emotional maltreatment on depression severity. There was a specific indirect effect of emotional abuse on depression severity through anxious attachment and of emotional neglect on depression severity through avoidant attachment. The hypothesized model of a sequential mediation of childhood maltreatment via insecure attachment and reduced social support on depression severity could also be supported.

Study III compared patients with ED (n = 38) and PDD (n = 34) as well as healthy control participants (n = 39) in different facets of social cognition and interpersonal problems. In addition, it was investigated whether these differences are rooted in experiences of childhood maltreatment. Patients with PDD reported more frequent experiences of childhood maltreatment and higher empathic distress than the comparison groups. Both patient groups also reported more interpersonal problems. The effect of childhood maltreatment on depression severity was mediated through interpersonal problems and empathic distress.

In study IV it was tested if interpersonal problems, empathic distress, emotional regulation, and self-compassion mediate the relationship between childhood maltreatment and depression severity in patients with PDD (N = 96). Emotional abuse predicted lower self-compassion and stronger interpersonal problems. The assumption of a sequential indirect path of emotional abuse via reduced self-compassion and increased emotional regulation difficulties to depression severity could be supported. In addition, interpersonal problems also mediated the effect. Changes in interpersonal problems, emotion regulation, and self-compassion were correlated with changes in depression severity over treatment.

Some limitations should be considered when interpreting the reported results. In particular, the cross-sectional designs of studies I to III should be mentioned, which do not allow conclusions about causality. Furthermore, the assessment of childhood maltreatment with retrospective self-report in all four studies is discussed as a limitation.

The high prevalence of childhood maltreatment in the different patient groups – and especially among patients with PDD – emphasizes the enormous importance of preventing childhood maltreatment in order to reduce suffering over the entire life span. The results also show that emotional abuse and emotional neglect – maltreatment types that are often overlooked in practice and little studied in research – appear to have a particularly strong impact on depression and various psychological skills. Fostering interpersonal skills, self-compassion, and emotion regulation seem to be promising targets in the treatment of patients with persistent depressive disorder and experiences of childhood maltreatment.

2 Theoretischer Hintergrund

2.1 Kindesmisshandlung

2.1.1 Definition, Formen und Prävalenz von Kindesmisshandlung

In Deutschland liegt bisher keine einheitliche Definition von Kindesmisshandlung vor, insbesondere unterscheiden sich in verschiedenen Kontexten (Justiz, Gesundheit, Jugendhilfe) Definitionen und Begrifflichkeiten (Witt, Rassenhofer, Pillhofer, Plener, & Fegert, 2013). In den USA wurde dagegen durch die *Centers of Disease Control and Prevention* (CDC) über Jahre hinweg eine einheitliche Definition erarbeitet, an der sich die vorliegende Dissertation orientiert (Leeb, Paulozzi, Melanson, Simon, & Arias, 2008). Laut Definition des CDC umfasst der Begriff Kindesmisshandlung jede Handlung oder Serie von Handlungen, die von einem Elternteil oder einer anderen Bezugsperson getan oder unterlassen werden und die zu einem Schaden, einem möglichen Schaden oder einer drohenden Gefahr für ein Kind führen (Leeb et al., 2008). Diese Definition beinhaltet Handlungen, die absichtlich und vorsätzlich durchgeführt werden, während die Schädigung des Kindes nicht zwingend beabsichtigt sein muss. Es besteht weitestgehender Konsens darüber, dass Kindesmisshandlungen aktive (d. h. Missbrauch) und passive (d. h. Vernachlässigung) Formen, sowie emotionale (psychische), körperliche, und sexuelle Dimensionen (Wingenfeld et al., 2010) umfasst. In den meisten aktuellen Studien wird zwischen den folgenden fünf Formen unterschieden: emotionaler Missbrauch, körperlicher Missbrauch, sexueller Missbrauch, emotionale Vernachlässigung und körperliche Vernachlässigung.

Laut Definition des CDC wird körperlicher Missbrauch definiert als die absichtliche Anwendung von körperlicher Gewalt gegen ein Kind, die zu einer körperlichen Verletzung führt oder führen kann (Leeb et al., 2008). Sexuellen Missbrauch definierte die Arbeitsgruppe als jede vollendete oder versuchte sexuelle Handlung, jeden sexuellen Kontakt mit einem Kind, oder die sexuelle Ausbeutung eines Kindes durch eine Bezugsperson (Leeb et al., 2008). Unter emotionalen oder psychischen Missbrauch wird Verhalten gefasst, das einem Kind vermittelt, es sei wertlos, fehlerhaft, ungeliebt, unerwünscht, gefährdet oder nur für die Befriedigung der Bedürfnisse einer anderen Person geschätzt (Leeb et al., 2008). Hierzu zählt die Arbeitsgruppe z.B. Verhalten, das erniedrigend, einschüchternd und herabsetzend ist. Emotionale Vernachlässigung wird definiert als Versagen, die emotionalen und psychologischen Grundbedürfnisse eines Kindes zu erfüllen, einschließlich Liebe, Zugehörigkeit, und Unterstützung (Bernstein et al., 2003). Unter körperlicher Vernachlässigung wird dagegen das Versagen von Betreuungspersonen gefasst, für die körperlichen Grundbedürfnisse eines Kindes zu sorgen, einschließlich Nahrung, Unterkunft, Kleidung, Sicherheit und Gesundheitsversorgung (Bernstein et al., 2003).

Zahlen zur Prävalenz von Kindesmisshandlung und verschiedenen Misshandlungsformen divergieren deutlich, was zum einen auf unterschiedliche Definitionen und Messmethoden zurückgeführt werden kann, aber auch auf Geschlechtsunterschiede, Effekte der Altersgruppen oder der geographischen Herkunft der Stichprobe (Stoltenborgh et al., 2015). Die Forschung zur Prävalenz von Kindesmisshandlung zeigt einen Fokus insbesondere auf sexuellen Missbrauch, während eine deutlich geringere Anzahl von Studien zur Prävalenz von emotionalem Missbrauch und Vernachlässigung („*neglect of neglect*“) vorliegt (McSherry, 2007; Stoltenborgh et al., 2015).

Meta-Analysen zur globalen Prävalenz der verschiedenen Misshandlungsformen erfasst im Selbstbericht berichten eine Prävalenz von 36.3% für den emotionalen Missbrauch, von 22.6% für den körperlichen Missbrauch, von 7.6 % für den sexuellen Missbrauch bei Jungen und von 18% bei Mädchen, von 18.4% für die emotionale Vernachlässigung und von 16.3% für die körperliche Vernachlässigung (Stoltenborgh, Bakermans-Kranenburg, Alink, & Van Ijzendoorn, 2012; Stoltenborgh et al., 2015; Stoltenborgh, Bakermans-Kranenburg, & Van Ijzendoorn, 2013; Stoltenborgh, van IJzendoorn, Euser, & Bakermans-Kranenburg, 2011). Es liegt bisher eine geringere Anzahl an Studien mit Fremdbericht (z.B. aus Datenregistern) vor, auf deren Basis deutlich geringere Prävalenzzahlen berichtet werden: unter 1% für alle Formen des Missbrauchs und eine zu geringe Datenlage bzgl. der Prävalenz von Vernachlässigung (Stoltenborgh et al., 2015). Diese starke Divergenz der Angaben im Selbst- und Fremdbericht spricht dafür, dass nur ein Bruchteil der Kindesmisshandlungs-Fälle öffentlichen Stellen bekannt wird. Für Deutschland berichtet eine aktuelle repräsentative Befragung mit Selbstbericht Prävalenzzahlen von 6.5% für mindestens moderaten emotionalen Missbrauch, 6.7% für körperlichen Missbrauch, 7.6% für sexuellen Missbrauch, 13.3% für emotionale Vernachlässigung und 22.5% für körperliche Vernachlässigung (Witt, Brown, Plener, Brähler, & Fegert, 2017). Die hohe Prävalenz der körperlichen Vernachlässigung in dieser Studie ist insbesondere auf die hohe Prävalenz körperlicher Vernachlässigung in der Generation der über 70-Jährigen zurückzuführen, die während oder kurz nach dem zweiten Weltkrieg geboren wurden.

Bisherige Forschung weist darauf hin, dass viele Kinder mehr als einer Form der Misshandlung ausgesetzt sind und es somit eine starke Überlappung von Misshandlungsformen gibt. Beispielsweise waren in einer repräsentativen deutschen Stichprobe 41.9% der Teilnehmer, die Kindesmisshandlung berichteten, mehr als einer Misshandlungsform ausgesetzt (Witt et al., 2017). Hohe Korrelationen wurden insbesondere zwischen emotionalem Missbrauch und körperlichem Missbrauch (r = .67) und zwischen emotionaler Vernachlässigung und körperlicher Vernachlässigung (r = .59) gefunden (Häuser, Schmutzer, Brähler, & Glaesmer, 2011).

2.1.2 Langfristige Folgen von Kindesmisshandlung

Kindesmisshandlung hat gravierende, vielfältige und langfristige negative Folgen auf verschiedenste Lebensbereiche des Individuums und stellt zudem auch eine hohe gesamtgesellschaftliche Belastung dar. Große Kohortenstudien konnten bereits konsistent zeigen, dass Kindesmisshandlung einen Hauptrisikofaktor für eine Vielzahl psychischer Erkrankungen im Erwachsenenalter darstellt, wie beispielsweise Posttraumatische Belastungsstörungen, Depressionen, Angsterkrankungen und Substanzabhängigkeit (Green et al., 2010; Kessler et al., 2010). Kindesmisshandlung wird zudem mit ungünstigen gesundheitsbezogenen Verhaltensweisen und einer Vielzahl negativer somatischer Konsequenzen, wie z.B. Übergewicht, Diabetes, koronale Erkrankungen, und der Gesamtzahl somatischer Diagnosen in Verbindung gebracht (Clemens et al., 2018; Monnat & Chandler, 2015; Springer, Sheridan, Kuo, & Carnes, 2007). Studien weisen darauf hin, dass Erwachsene mit einer Vorgeschichte von Kindesmisshandlung ein niedrigeres Bildungs-, Beschäftigungs- und Einkommensniveau sowie ein geringeres Vermögen aufweisen, als Personen, die keiner Kindesmisshandlung ausgesetzt waren (Currie & Widom, 2010; Metzler, Merrick, Klevens, Ports, & Ford, 2017).

Resultierend aus diesen langfristigen Auswirkungen von Kindesmisshandlung zeigt sich auch eine hohe finanzielle gesamtgesellschaftliche Belastung. So wurde die jährliche wirtschaftliche Belastung durch Folgen von Kindesmisshandlung auf 11 bis 30 Mrd. Euro für Deutschland (Habetha, Bleich, Weidenhammer, & Fegert, 2012) und auf etwa 124 Mrd. Dollar für die USA geschätzt (Fang, Brown, Florence, & Mercy, 2012). Diese grobe Annäherung unterstreicht neben dem enormen und langfristigen individuellen Leid zusätzlich die gesamtgesellschaftliche Belastung durch Kindesmisshandlung und deren Folgen.

Gleichzeitig sind nicht alle Individuen, die Kindesmisshandlung ausgesetzt waren, gleichermaßen von den oben genannten Folgen betroffen. Insbesondere andere nahe und unterstützende Beziehungen in Kindheit, Jugend und Erwachsenenalter scheinen einen schützenden („*buffering*“) Effekt zu haben, und die Auswirkungen von Kindesmisshandlung auf die psychische Gesundheit abzumildern (Collishaw et al., 2007; Sara R. Jaffee, Takizawa, & Arseneault, 2017). Mehr Forschung zu potentiell schützenden Faktoren ist jedoch nötig, um ein besseres Verständnis für die sehr unterschiedlichen Verläufe nach Kindesmisshandlung zu gewinnen und, um langfristig Kinder, die Kindesmisshandlung bereits ausgesetzt waren, besser fördern und vor schwerwiegenden langfristigen Folgen schützen zu können.

Ebenso erscheint es notwendig, potenzielle Mechanismen näher zu untersuchen, über die Kindesmisshandlung langfristig zu psychischen Problemen führt. Dies könnte helfen, Folgen von Kindesmisshandlung entgegenzuwirken und Behandlungen besser an die Bedürfnisse und Probleme der Betroffenen anzupassen, um die Wirksamkeit zu erhöhen.

2.2 Depressionen

2.2.1 Charakteristika und Prävalenz der episodischen und persistierenden Depression

Nach Definition der *International Classification of Diseases* (ICD-10; World Health Organization, 1993) ist eine depressive Episode gekennzeichnet durch die Hauptsymptome einer gedrückten Stimmung, Freud- und Interessenlosigkeit, sowie einer Verminderung von Antrieb und Aktivität. Als weitere mögliche Symptome charakterisieren Konzentrationsschwierigkeiten, Suizidgedanken, sowie Veränderungen von Schlaf und Appetit und ein vermindertes Selbstwertgefühl, Selbstvertrauen, und Gedanken über eigene Wertlosigkeit die Depression. Allerding zeigt sich das klinische Erscheinungsbild depressiver Störungen als sehr heterogen mit unterschiedlichen Ausprägungen und Kombinationen verschiedener Symptome (Goldberg, 2011).

In dem *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013) wurde zusätzlich die Diagnose der persistierenden depressiven Störung (PDD) aufgenommen, bei der über einen Zeitraum von mindestens zwei Jahren eine gedrückte Stimmung durchgehend anhält. Dabei kann das Vollbild einer Depression durchgehend bestehen (mit persistierender Episode einer Major Depression), nie voll bestehen (mit reinem dysthymen Syndrom), oder ein Wechsel zwischen Dysthymie und Vollbild der Depression vorliegen (mit intermittierenden Episoden einer Major Depression, mit oder ohne aktueller Episode).

Sowohl ICD-10 als auch DSM-5 unterscheiden zwischen einer ersten depressiven Episode und einer rezidivierenden depressiven Störung mit mindestens zwei depressiven Episoden (American Psychiatric Association, 2013; World Health Organization, 1993). Ein hoher Anteil der betroffenen Personen entwickeln eine rezidivierende Depression, mit einer erhöhten Wahrscheinlichkeit eines Rezidivs bei höherer Anzahl und Schwere früherer Episoden, komorbiden Erkrankungen und nicht vollständiger Remission (Burcusa & Iacono, 2007; Hardeveld, Spijker, De Graaf, Nolen, & Beekman, 2010). In der vorliegenden Arbeit wird der Begriff der *episodischen Depression* (ED) zur Abgrenzung von der PDD verwendet und umfasst sowohl einen rezidivierenden Verlauf als auch einen Verlauf mit einer einzelnen depressiven Episode mit einer Dauer unter zwei Jahren.

Die Lebenszeitprävalenz, an einer depressiven Störung zu erkranken, beträgt laut einer repräsentativen europäischen Studie 12.8%, die 12-Monats-Prävalenz 3.9% (Alonso et al., 2004). Eine weitere repräsentative Studie schätzt, dass 4.9 Mio. Menschen in Deutschland 2010 von einer unipolaren Depression betroffen waren, was einer 12-Monats-Prävalenz von 7.7% entspricht (Jacobi et al., 2014). Es zeigt sich hierbei relativ konsistent, dass Frauen im Vergleich zu Männern etwa doppelt so häufig betroffen sind und Prävalenzen mit höherem Alter sinken (Jacobi et al., 2014; Kessler & Bromet, 2013).

Eine repräsentative australische Studie und eine aktuelle repräsentative deutsche Bevölkerungsstudie berichten, dass etwa ein Drittel der Personen mit der Diagnose einer Depression unter einer persistierenden depressiven Störung (PDD) leiden (Murphy & Byrne, 2012; Nübel et al., 2020). Dies entspricht einer Lebenszeitprävalenz der PDD von 4.6%. Ein aktueller Übersichtsartikel fasst zusammen, dass Patient*innen mit einer PDD im Vergleich zu Patient*innen mit einer ED ein jüngeres Erkrankungsalter, eine höhere Anzahl Komorbiditäten und einen schwereren Krankheitsverlauf mit höherer Suizidalität aufweisen (Köhler, Chrysanthou, Guhn, & Sterzer, 2019).

2.2.2 Kindesmisshandlung als ätiologischer Faktor der Depression

Es wird heute davon ausgegangen, dass eine Vielzahl genetischer, biologischer und Umweltfaktoren gemeinsam zur Entstehung von Depressionen beitragen und dabei auch interagieren. Erfahrungen von Kindesmisshandlung stellen einen bedeutenden Risikofaktor für die Entstehung von Depressionen dar. So kommt eine aktuelle Meta-Analyse zu dem Schluss, dass etwa die Hälfte der Patient*innen mit Depression Kindesmisshandlung ausgesetzt waren und Personen mit einer Geschichte von Kindesmisshandlung ein 2.66-Fach höheres Risiko aufweisen, eine Depression im Erwachsenenalter zu entwickeln als gesunde Personen (Nelson et al., 2017). Bei separater Betrachtung der Prävalenzraten einzelner Misshandlungsformen bei Patient*innen mit Depression zeigte sich die höchste Prävalenz für emotionale Vernachlässigung (43%), gefolgt von emotionalem Missbrauch (37%), körperlicher Vernachlässigung (36%), körperlichem Missbrauch (28%) und sexuellem Missbrauch (25%) (Nelson et al., 2017). Auch die Wahrscheinlichkeit, eine Depression zu entwickeln, sowie die Schwere der aktuellen depressiven Symptomatik scheinen insbesondere mit emotionalem Missbrauch und emotionaler Vernachlässigung zusammenzuhängen (Humphreys et al., 2020; Infurna et al., 2016; Mandelli, Petrelli, & Serretti, 2015; Nelson et al., 2017).

Zudem weisen depressive Personen mit Erfahrungen von Kindesmisshandlung eine durchschnittlich vier Jahre frühere Ersterkrankung und ein etwa doppelt so hohes Risiko für einen chronischen und behandlungsresistenten Verlauf der Depression auf, im Vergleich zu depressiven Personen, die keiner Kindesmisshandlung ausgesetzt waren (Nanni, Uher, & Danese, 2012; Nelson et al., 2017). Kindesmisshandlung ist demnach ein bedeutender Risikofaktor für die Entstehung einer Depression, aber auch für einen schweren Krankheitsverlauf der Depression.

2.3 Mediatoren des Zusammenhangs zwischen Kindesmisshandlung und Depression

Wie zuvor beschrieben, gibt es bereits konsistente Befunde für einen Zusammenhang zwischen Kindesmisshandlung und der Entstehung von Depressionen über die Lebensspanne sowie einem schweren Verlauf von Depressionen. Zu den psychologischen Mechanismen, die diesen Zusammenhang erklären, besteht jedoch noch Forschungsbedarf.

Ebenfalls werden mediierende biologische und neuronale Prozesse diskutiert. So zeigten sich bei Personen mit Erfahrungen von Kindesmisshandlung beispielsweise Veränderungen in der Funktion der Hypothalamus-Hypophysen-Nebennierenrinden-Achse und daraus resultierende neuroendokrinologische Veränderungen (Strüber, Strüber, & Roth, 2014), eine erhöhte Amygdala Aktivierung bei Präsentation negativer Gesichtsausdrücke (Dannlowski et al., 2012), erhöhte inflammatorische Marker (Danese et al., 2008; Danese, Pariante, Caspi, Taylor, & Poulton, 2007) und ein reduziertes Hippocampus-Volumen (Opel et al., 2014) – biologische Veränderungen, die wiederum mit der Entstehung von Depressionen in Verbindung gebracht werden.

Mit diesen biologischen Veränderungen sind auch psychologische Prozesse verknüpft, wie beispielsweise Veränderungen in der Emotionsregulation und im Bedrohung-Monitoring (Teicher, Samson, Anderson, & Ohashi, 2016). Aufgrund bestehender Forschungslücken soll ein Schwerpunkt dieser Arbeit auf möglichen psychologischen Mechanismen liegen, die den Zusammenhang zwischen Kindesmisshandlung und Depression mediieren. Im Folgenden werden daher drei Theorien zu mediierenden psychologischen Prozessen und erste empirische Befunde zu den einzelnen potenziellen psychologischen Mediatoren vorgestellt.

2.3.1. Der Bindungsstil als Mediator

Als erster möglicher psychologischer Mediator des Effektes von Kindesmisshandlung auf Depressionen wird im Folgenden der Bindungsstil dargestellt.

2.3.1.1. Die Bindungstheorie

Die Bindungstheorie nach John Bowlby (1982) geht davon aus, dass Menschen ein angeborenes adaptives psychobiologisches System haben – das sogenannte *attachment behavioral system.* Dieses motiviert sie dazu, die Nähe zu wichtigen Bezugspersonen zu suchen, insbesondere dann, wenn sie sich in Not fühlen (Bowlby, 1982). Nach der Bindungstheorie entwickelt jeder Mensch ein sogenanntes *working model*, das mentale Repräsentationen der Reaktionen von Bezugspersonen aber auch des eigenen Wertes und der eigenen Selbstwirksamkeit in Beziehungen enthält. Das *working model* wird durch frühe Erfahrungen mit wichtigen Bezugspersonen stark beeinflusst und es werden aus ihm Erwartungen an zukünftige Interaktionen mit anderen abgeleitet. Dieses *working model* ist nach Bowlby (Bowlby, 1988) über die Lebensspanne relativ konstant, kann aber durch prägende neue Beziehungserfahrungen im Lebensverlauf beeinflusst werden.

Bowlby (1973) und Ainsworth (1984) beobachteten, dass sich bereits im frühen Kindesalter individuelle Unterschiede im Bindungsverhalten von Kindern zeigen, die in großen Teilen auf Verhaltensweisen der Bezugspersonen zurückzuführen sind. Wenn Eltern in der Regel warm, nah, responsiv und fürsorglich auf das Nähe suchende Verhalten des Kindes reagieren, ist es wahrscheinlicher, dass das Kind einen

sicheren Bindungsstil entwickelt. Dies zeigt sich z.B. darin, dass sich das Kind an die Bezugsperson als „*save haven*" wendet, wenn es sich in Not fühlt, und die Bezugsperson als „*secure base*" beim Explorieren und Entdecken miteinbezieht. Reagieren Bezugspersonen jedoch wenig responsiv, ablehnend oder unberechenbar, zeigen Kinder häufiger *hyperaktivierende* Strategien (eine Intensivierung des Nähe suchenden Verhaltens) oder *deaktivierende* Strategien (Aufgabe des Nähe suchenden Verhaltens und Rückzug) (Mikulincer & Shaver, 2003).

Die Erkenntnisse der Bindungstheorie wurden auch auf Beziehungen im Erwachsenenalter übertragen. Das in der vorliegenden Dissertation eingesetzte Modell von Mikulincer und Shaver (2003) konzeptualisiert Bindung im Erwachsenenalter auf zwei Dimensionen: Angst und Vermeidung. Angst in nahen Beziehungen ist nach dem Modell z.B. durch ständiges Monitoring der Beziehung, starke Bemühungen um Nähe, Abhängigkeit und klammerndes Verhalten (entsprechend der *hyper-aktivierenden* Strategien) gekennzeichnet. Dagegen ist Vermeidung in nahen Beziehungen z.B. durch Vermeidung von Intimität und Interdependenz, Verschlossenheit und Konfliktvermeidung (entsprechend den *deaktivierenden* Strategien) gekennzeichnet. Eine niedrige Ausprägung von Angst und Vermeidung in Beziehungen entspricht einem sicheren Bindungsstil (Mikulincer & Shaver, 2003).

Nach einem Modell von Shelly Riggs (2010) führt insbesondere emotionaler Missbrauch in der Kindheit zu einem unsicheren Bindungsstil. Das Modell legt nahe, dass eine unsichere Bindung zu Folgeproblemen, wie z.B. Defiziten in der Emotionsregulation und sozialen Fertigkeiten, sowie schädlichen Beziehungen führt, die wiederum bedeutende Risikofaktoren für die Entstehung von Psychopathologie darstellen (Riggs, 2010).

2.3.1.2 Bindung als Mediator: empirische Befunde

Nur wenige Studien haben bisher die Bindung als einen möglichen Mediator des Effekts von Kindesmisshandlung auf Psychopathologie berücksichtigt und diese untersuchten größtenteils nicht-klinische Stichproben. In subklinischen Stichproben mediierte ein unsicherer Bindungsstil den Effekt von Kindesmisshandlung auf psychischen Stress (Dion, Gervais, Bigras, Blackburn, & Godbout, 2019), internalisierende Symptome (Muller, Thornback, & Bedi, 2012) und Depressivität (Bifulco et al., 2006; Hankin, 2005; Widom, Czaja, Kozakowski, & Chauhan, 2018). Inkonsistent sind jedoch die Befunde, ob nur ängstliche (Dion et al., 2019; Widom et al., 2018) oder auch vermeidende Bindung (Bifulco et al., 2006) diesen Effekt mediiert. Nur eine Studie untersuchte dagegen bisher die Bindung als Mediator des Effektes von Kindesmisshandlung auf die Schwere der Depression in einer Stichprobe depressiver Patient*innen (Schierholz, Krüger, Barenbrügge, & Ehring, 2016). Diese Studie weist darauf hin, dass ein vermeidender Bindungsstil, emotionale Dysregulation und ein depressiver Attributionsstil gemeinsam die Beziehung zwischen Kindesmisshandlung und Depressionsschwere vermitteln.

2.3.2. Soziale Kognition und interpersonelle Probleme als Mediatoren

Basierend auf dem interpersonellen Modell der Depression von James Jr. McCullough (2003) werden in der vorliegenden Dissertation Facetten der sozialen Kognition und interpersonelle Probleme als weitere mögliche Mediatoren des Effektes von Kindesmisshandlung auf Depression untersucht. McCulloughs Modell der chronischen Depression und sein Therapieansatz basieren auf Annahmen, die sich größtenteils auf seine klinischen Erfahrungen stützen und daher noch einer empirischen Prüfung bedürfen.

2.3.2.1. Das CBASP-Modell der chronischen Depression

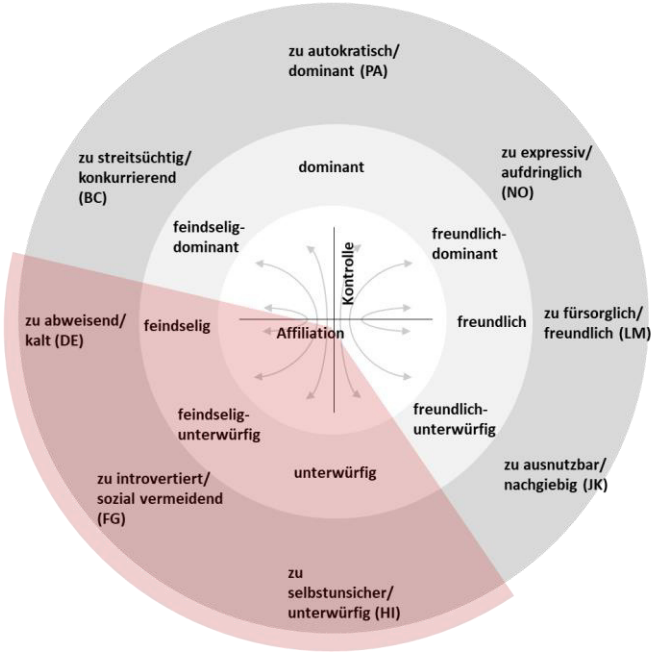

Abbildung 1. Integrierende Darstellung des Circumplex Modells (Kreis und innerer Ring; Kiesler, 1983) und der Skalen des Inventars Interpersoneller Probleme (äußerer Ring; Horowitz et al., 2016). Rot markiert ist der Stimulus-Bereich, den persistierend depressive Personen laut McCullough (2003) besonders häufig aufweisen.

McCullough beschreibt in seinem interpersonellen Modell der chronischen Depression (siehe Abbildung 2 für eine Zusammenfassung), dass ein Großteil der Patient*innen mit einer persistierenden Depression in ihrer Kindheit schwere Misshandlungserfahrungen und Abwertungen haben erleben müssen (McCullough Jr, Schramm, & Penberthy, 2015). Nach seinem Modell führen diese frühen Erfahrungen dazu, dass sich Kinder und Jugendliche als Schutzmechanismus immer weiter aus der interpersonellen Welt zurückziehen. Er beschreibt, dass chronisch depressive Patient*innen – um Angst und Bedrohung zu vermeiden – häufig submissiv/passive und feindselig/distanzierte Verhaltensweisen gegenüber anderen Personen zeigen (siehe Abbildung 1 für eine Einordnung in das interpersonelle Circumplex Modell nach Kiesler (1983) und in das ebenfalls am Circumplex Modell orientierten Inventar Interpersonaler Probleme (IIP; Horowitz, Strauß, Thomas, & Kordy, 2016). Er geht zudem davon aus, dass die Betroffenen in ihrer Wahrnehmung von der Umwelt abgekoppelt sind, sodass sie wenig durch neue Erfahrungen und Rückmeldungen anderer Personen beeinflussbar sind und zugleich selbst den Eindruck haben, durch ihr Verhalten ihre Umwelt nicht beeinflussen zu können (McCullough Jr., 2003). Dies führe einerseits zu sehr globalen und verallgemeinernden Annahmen („keiner interessiert sich für mich“). Zugleich führe dies auch zu einer egozentrischen Sichtweise und monologisierender verbaler Kommunikation, sowie zu einer Unfähigkeit authentisch empathisches Verhalten zu zeigen. Zusätzlich beschreibt McCullough, dass Patient*innen mit einer persistierenden Depression häufig geringe Emotionsregulationsfertigkeiten, insbesondere auch in

zwischenmenschlichen Interaktionen, haben (McCullough Jr., 2003). Angelehnt an Piagets Entwicklungstheorie (1926), fasst McCullough diese Charakteristika chronisch depressiver Patient-*innen unter dem Begriff *präoperatorisches Funktionsniveau* zusammen. Diese Merkmale würden langfristig zu dysfunktionalen Beziehungen und zwischenmenschlichen Problemen führen und zur Entstehung und Aufrechterhaltung persistierender Depressionen beitragen (siehe Abbildung 2 für eine zusammenfassende Darstellung des Modells).

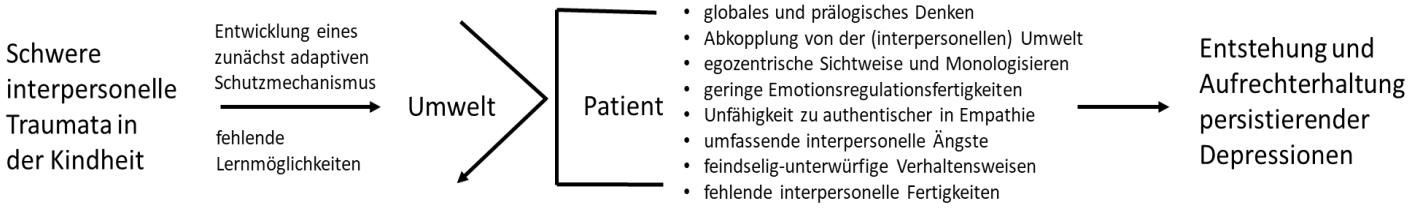

Abbildung 2. Zusammenfassende Darstellung der Theorie der chronischen Depression nach James McCullough (basierend auf McCullough Jr., 2003; McCullough Jr et al., 2015)

2.3.2.2. Soziale Kognition und interpersonelle Probleme als Mediatoren: empirische Befunde

Als eine Facette der sozialen Kognition werden Veränderungen in der *Theory of Mind* (ToM), der kognitiven Fähigkeit, sich selbst und Anderen mentale Zustände zuzuschreiben (Premack & Woodruff, 1978), betrachtet. Während die kognitive ToM Rückschlüsse auf Gedanken und Absicht umfasst, bezieht sich die affektive ToM auf das Nachvollziehen von Emotionen (Shamay-Tsoory et al., 2007). Als weitere Facette untersuchen wir Veränderungen in der Empathie, die ebenfalls als ein mehrdimensionales Konstrukt definiert ist (Davis, 1983): Die kognitive Dimension der Empathie überschneidet sich stark mit dem Konzept der affektiven ToM, während die affektive Dimension als eine emotionale Reaktion auf die Gefühle einer anderen Person beschrieben wird (Schreiter et al., 2013). Affektive Empathie kann a) *empathischen Distress* (*empathic distress*) hervorrufen, der eine aversive und eher selbst-bezogene Reaktion beschreibt, gekennzeichnet durch Angst und Anspannung (Davis, 1983; Singer und Klimecki, 2014) oder b) *empathische Anteilnahme* (*empathic concern*), eine Reaktion, die stärker auf die andere Person bezogen und mit Gefühlen der Besorgnis und Wärme verbunden ist, sowie prosoziales Verhalten erleichtert (Davis, 1983). Als einen dritten wichtigen Bereich der sozialen Kognition untersuchen wir mögliche Verzerrungen in der Emotionserkennung in Gesichtern. Zudem betrachten wir interpersonelle Probleme, die nach dem interpersonellen Circumplex Modell (Kiesler, 1983) entlang der Dimensionen Affiliation und Kontrolle klassifiziert werden können (siehe Abbildung 1).

Bisher gibt es nur wenige Studien, die den Zusammenhang zwischen Kindesmisshandlung und Aspekten der sozialen Kognition und interpersoneller Probleme in Patient*innen mit Depression untersuchen. Sie weisen auf einen Zusammenhang zwischen depressiven Symptomen und Defiziten in der ToM sowie

höherem empathischen Distress hin (Bora & Berk, 2016; Schreiter, Pijnenborg, & aan het Rot, 2013). Zudem spricht eine Meta-Analyse für generelle Defizite depressiv erkrankter Personen beim Erkennen von Emotionen (mit Ausnahme der Emotion Traurigkeit) (Dalili, Penton-Voak, Harmer, & Munafo, 2015). Dagegen deuten andere Ergebnisse darauf hin, dass depressive Patient*innen im Vergleich zu gesunden Proband*innen einen negativen Interpretations-Bias zeigen, wenn zweideutige oder neutrale Gesichter präsentiert werden (Bomfim, Ribeiro, & Chagas, 2019; Bourke, Douglas, & Porter, 2010; Gollan, Pane, McCloskey, & Coccaro, 2008; Münkler, Rothkirch, Dalati, Schmack, & Sterzer, 2015). Zudem weist die bisherige Forschung darauf hin, dass Personen mit Depression häufiger interpersonelle Probleme berichten, insbesondere im Bereich von submissiv/passiven und feindselig/distanzierten Verhaltensweisen (Bird, Tarsia, & Schwannauer, 2018). Ob diese Abweichungen der sozialen Kognition und interpersoneller Probleme mit Erfahrungen von Kindesmisshandlungen zusammenhängen und, ob sie sich zwischen ED und PDD unterscheiden, ist jedoch noch unzureichend untersucht.

2.3.3. Selbstmitgefühl und Emotionsregulation als Mediatoren

Basierend auf verschiedenen Studien, welche nahelegen dass Patient*innen mit depressiven Störungen Defizite bzgl. Selbstmitgefühl und Emotionsregulation aufweisen (vgl. 2.3.3.2) und dem Modell der *Compassion Focused Therapy* (CFT; Gilbert, 2012) werden als weitere potenzielle psychologische Mechanismen in dieser Arbeit Defizite im Selbstmitgefühl und in der Emotionsregulation betrachtet.

Selbstmitgefühl wird von Neff (2003) definiert als eine unterstützende, freundliche und fürsorgliche Haltung sich selbst gegenüber, insbesondere in schwierigen Zeiten, z.B. nach eigenen Fehlern oder Versagen oder im Umgang mit eigenem Schmerz. Neff (2003) beschreibt drei Dimensionen des Selbstmitgefühl-Konstruktes: Selbstfreundlichkeit (eine wohlwollende Haltung sich selbst gegenüber), verbindende Menschlichkeit (zu erkennen, dass auch andere Menschen Leid erleben und Schwächen haben statt sich im eigenen Leid isoliert zu sehen) und Achtsamkeit (eine offene und akzeptierende Haltung gegenüber eigenen Gedanken und Gefühlen). Dagegen definiert Gilbert (2014) Mitgefühl als eine Sensibilität für das eigene Leid und das Leid anderer, verbunden mit einer Selbstverpflichtung zu versuchen, dieses Leid zu lindern und zu verhindern. Gilbert stellt in seiner Konzeptualisierung daher stärker als Neff die Motivation und Intention, durch aktive Hilfe und Selbsthilfe Leid zu reduzieren, in den Vordergrund.

Emotionsregulation wird definiert als "Prozesse, die für die Beobachtung, Bewertung und Modifizierung emotionaler Reaktionen verantwortlich sind, insbesondere der Intensität und zeitlichen Dauer, um eigene Ziele zu erreichen" (Thompson, 1994). Die meisten aktuellen Definitionen betonen dabei die Bedeutung des Erkennens, Verstehens und der Akzeptanz von Emotionen (Gratz und Roemer, 2004), während frühere Ansätze eher die Kontrolle über das Erleben und Ausdrücken von Emotionen (insbesondere negativer Emotionen) in den Mittelpunkt stellten (Kopp, 1989).

2.3.3.1 Das Modell der Compassion Focused Therapy

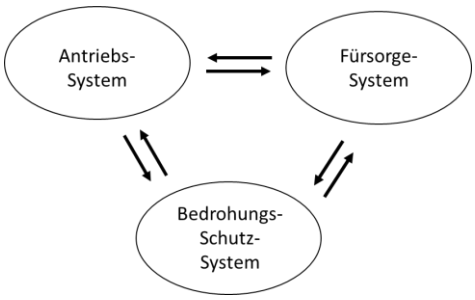

Abbildung 3. Die Interaktion zwischen den drei Haupt-Emotionsregulations-Systemen (nach Gilbert, 2009)

Die *Compassion Focused Therapy* (CFT) wurde für Patient*innen entwickelt, die komplexe psychische Probleme zeigen, die stark mit Scham und innerer Selbst-Kritik verknüpft sind. Der CFT-Entwickler Paul Gilbert geht in seinem Modell davon aus, dass frühe Erfahrungen von Missbrauch und Vernachlässigung zu Veränderungen in den drei von ihm beschriebenen Emotionsregulations-Systemen führen (Gilbert, 2010). Er beschreibt dabei als drei Emotionsregulationssysteme: 1.) das „Bedrohung-Schutz-System“, mit dem Ziel, Bedrohungen schnell zu erkennen und darauf zu reagieren (z.B. mit Kampf, Flucht, Erstarren) und verknüpft mit einer Aktivierung der Amygdala und der Hypothalamus-Hypophysen-Nebennierenrindenachse, 2.) das „Antriebs-System“, mit dem Ziel, Dinge und Aktivitäten anzustreben, die positive Aufregung und Freude auslösen (z.B. Sex, Konsum, Status, positive Aktivitäten) und verknüpft mit dem Dopamin-System, und 3.) das „Fürsorge-System“, mit dem Ziel einen Zustand von Beruhigung, Zufriedenheit und Sicherheit zu erreichen und das mit dem Endorphin- und Oxytocin-Systemen verknüpft ist (siehe Abbildung 3 für eine Darstellung der interagierenden Systeme im Gleichgewicht) (Gilbert, 2010). Nach Gilberts Modell führen frühe Erfahrungen, durch wichtige Bezugspersonen nicht beachtetet, ignoriert zu werden und nicht gewollt zu sein (Vernachlässigung) oder beschimpft, bedroht, verletzt und abgewertet zu werden (Missbrauch), zu einem stark ausgeprägten Schamgefühl und damit auch zu einem übermäßig ausgeprägten Bedrohungs-Schutz-System, um Bedrohungen und Scham auslösende Situationen schnell zu entdecken und zu vermeiden (siehe Abbildung 4 für eine Zusammenfassung des Modells). Gleichzeitig ist nach Gilbert (2010) das Fürsorge-System bei den betroffenen Personen häufig gering ausgeprägt, da sie sich in ihrer Kindheit selten geborgen, sicher, zufrieden und ruhig fühlen konnten. Dieses Ungleichgewicht der Systeme führe häufig zu Sicherheitsstrategien mit stark ausgeprägter Selbst-Kritik, -Abwertung, und -Bestrafung und stark ausgeprägten Schamgefühlen in verschiedensten Situationen. Dies trage wiederum zu Schwierigkeiten in der Emotionsregulation und der Entstehung und Aufrechterhaltung von Psychopathologie, wie z.B. einer depressiven Symptomatik bei.

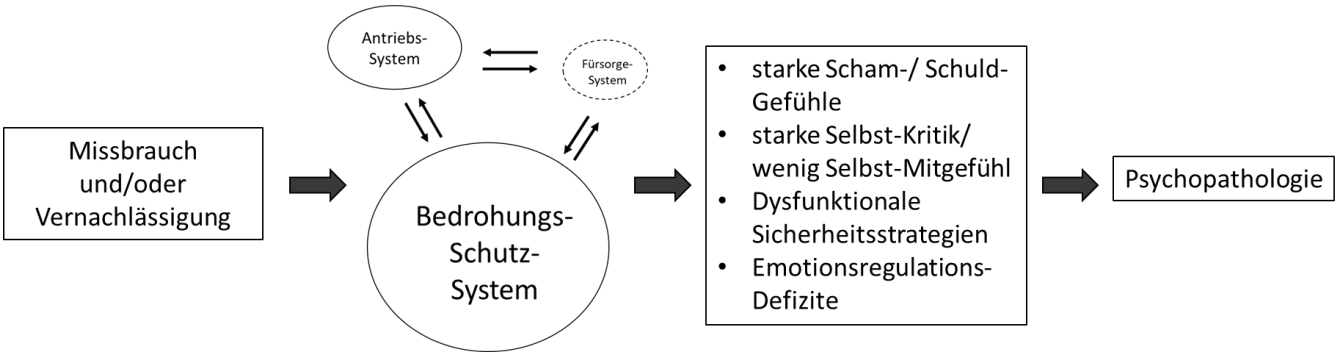

Abbildung 4. Zusammenfassende Darstellung der Entstehung und Aufrechterhaltung von Psychopathologie nach dem Modell der Compassion Focussed Therapy (CFT) von Paul Gilbert (basierend auf Gilbert, 2010)

2.3.3.2. Selbstmitgefühl und Emotionsregulation als Mediatoren: empirische Befunde

Die bisherigen empirischen Befunde stützen Gilberts Annahme eines verringerten Selbstmitgefühls und verstärkter Selbst-Kritik bei Personen, die Kindesmisshandlung ausgesetzt waren (Tanaka, Wekerle, Schmuck, & Paglia-Boak, 2011; Vettese, Dyer, Li, & Wekerle, 2011). Zwei neuere Studien weisen zudem darauf hin, dass insbesondere der Effekt von emotionalem Missbrauch und emotionale Vernachlässigung auf depressive Symptome im Erwachsenenalter durch vermindertes Selbstmitgefühl vermittelt wird (Ross et al., 2019; Wu, Chi, Lin, & Du, 2018).

Zudem zeigte sich in der bisherigen Forschung konsistent ein Zusammenhang zwischen einem verminderten Selbstmitgefühl und einer höheren Depressionsschwere in klinischen und nicht-klinischen Stichproben (Diedrich, Burger, Kirchner, & Berking, 2017; Ehret, Joormann, & Berking, 2015; MacBeth & Gumley, 2012). Auch erste längsschnittliche Befunde deuten darauf hin, dass geringes Selbstmitgefühl einen Vulnerabilitätsfaktor für Depressionen darstellt (Krieger, Berger, & Holtforth, 2016). Interventionsprogramme, die auf eine Stärkung von Mitgefühl und Selbstmitgefühl fokussieren, haben sich ebenfalls als wirksam zur Verringerung depressiver Symptome gezeigt (Ferrari et al., 2019; Kirby, 2017).

Auch die Entwicklung von Emotionsregulations-Fertigkeiten in der Kindheit wird stark vom Erziehungsverhalten der Eltern, den Eltern als Vorbildern und dem emotionalen Klima in der Familie beeinflusst (Morris, Silk, Steinberg, Myers, & Robinson, 2007) und Kindesmisshandlung behindert eine angemessene Entwicklung (Dvir, Ford, Hill, & Frazier, 2014; Weissman et al., 2019). Bisherige Forschung weist darauf hin, dass insbesondere emotionaler Missbrauch und emotionale Vernachlässigung mit Emotionsregulations-Schwierigkeiten zusammenhängen (Christ et al., 2019; Huh, Kim, Lee, & Chae, 2017; O'Mahen, Karl, Moberly, & Fedock, 2015; Racine & Wildes, 2015).

In zahlreichen Studien wurden Defizite in der Emotionsregulation schließlich mit der Entwicklung und Aufrechterhaltung verschiedener Formen der Psychopathologie (Aldao, Nolen-Hoeksema, & Schweizer,

2010; Berking & Wupperman, 2012), aber auch speziell mit Depressionen in Verbindung gebracht (Joormann & Stanton, 2016). Erste Befunde deuten zudem darauf hin, dass Defizite in der Emotionsregulation den Zusammenhang zwischen Kindesmisshandlung und der Depressionsschwere sowie und -Chronizität vermitteln könnten (Hopfinger, Berking, Bockting, & Ebert, 2016; Huh et al., 2017).

3 Darstellung des Dissertationsvorhabens

3.1 Herleitung und Relevanz der Fragestellungen

Zahlreiche Studien zeigten bereits konsistent, dass Kindesmisshandlung ein bedeutender Risikofaktor für die Entstehung verschiedenster somatischer und psychischer Störungen – wie auch der Depression – ist (siehe Abschnitt 2.1.2). Auch Hinweise auf einen Zusammenhang zwischen Kindesmisshandlung und einem schwereren Verlauf psychischer Erkrankungen verdichten sich (siehe Abschnitt 2.1.2. und 2.2.2.).

Allerdings bestehen noch relevante Forschungslücken bezüglich: 1.) der differentiellen Auswirkung der fünf spezifischen Kindesmisshandlungsformen, 2.) der Mechanismen des Zusammenhangs zwischen Kindesmisshandlung und Depression und 3.) Unterschieden zwischen episodischer und persistierender Depression. Diese drei Haupt-Ziele der Dissertation werden im Folgenden beschrieben. Jedes der Haupt-Ziele wird von mindestens zwei der vier Dissertations-Studien adressiert, wie im theoretischen Modell der vorliegenden Arbeit (Abbildung 5) dargestellt.

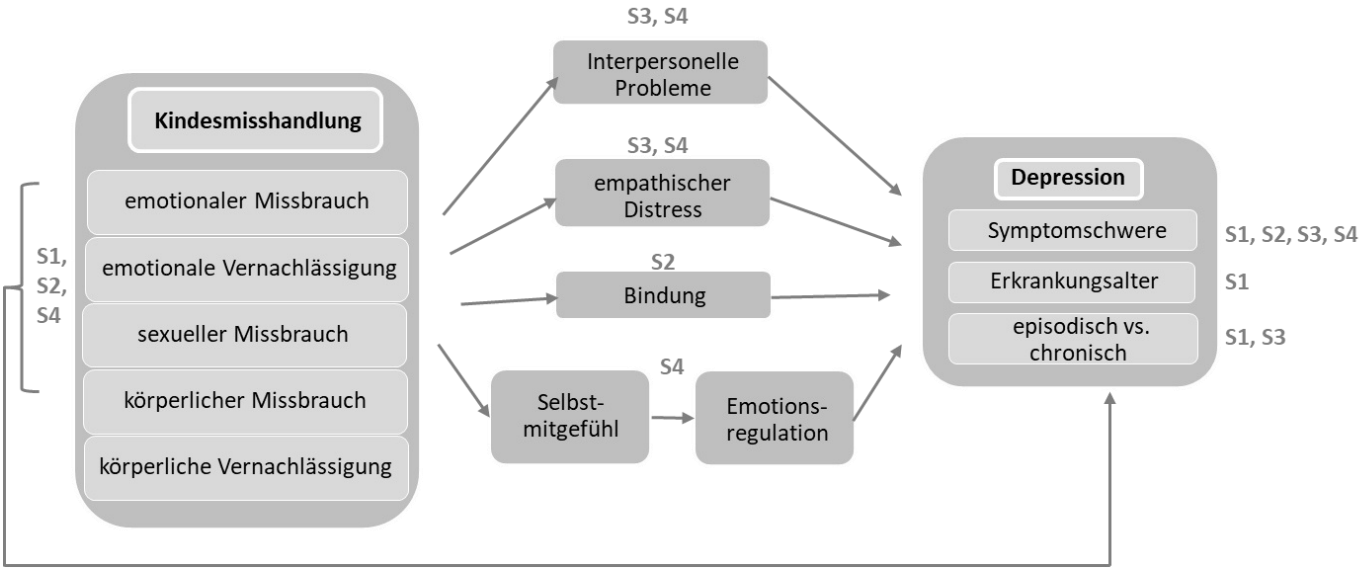

Abbildung 5. Darstellung des theoretischen Modells der vorliegenden Arbeit. S1, S2, S3, S4 stehen jeweils für die Studien I bis IV.

Ziel 1: Untersuchung differentieller Auswirkungen der fünf spezifischen Misshandlungsformen

In den Medien, der öffentlichen Wahrnehmung und früheren Forschung lag der Fokus bezüglich Kindesmisshandlung zunächst fast ausschließlich auf sexuellem und körperlichem Missbrauch (Stoltenborgh et al., 2015). Die geringe Berücksichtigung von emotionalem Missbrauch und emotionaler Vernachlässigung könnte teilweise darauf zurückzuführen sein, dass diese Misshandlungsformen schwerer definierbar und die Verletzungen weniger sicht- und messbar sind. Die Vernachlässigung dieser Misshandlungsformen ist insbesondere deshalb problematisch, da es erste Hinweise darauf gibt,

dass emotionale Misshandlung besonders hohe Prävalenzen aufweist und in verschiedensten Bereichen besonders gravierende Auswirkungen hat (Humphreys et al., 2020; Nelson et al., 2017; Riggs, 2010; Ross et al., 2019). Daher ist in den letzten Jahren ein stärkeres Bewusstsein dafür entstanden, dass diese Misshandlungsformen ebenfalls untersucht werden sollten. Ein weiteres Problem bisheriger Forschung besteht darin, dass häufig in Studien nur eine Misshandlungsform separat betrachtet und Auswirkungen dieser spezifischen Misshandlungsform untersucht werden. Dies ist insofern problematisch, da die Misshandlungsformen sehr häufig gemeinsam auftreten und daher starke Überschneidungen zwischen ihnen bestehen (Witt et al., 2017). Dies kann dazu führen, dass gefundene Zusammenhänge eigentlich auf die Auswirkung einer anderen, nicht im Modell berücksichtigten, Misshandlungsform zurückzuführen sind. Nur wenn die verschiedenen Misshandlungsformen gemeinsam in Modellen berücksichtigt werden, kann zwischen den verschiedenen Auswirkungen differenziert werden.

Ziel 2: Untersuchung möglicher Mechanismen des Zusammenhangs zwischen Kindesmisshandlung und Depression

Depressive Patient*innen mit Erfahrungen von Kindesmisshandlung weisen häufig einen schwereren Krankheitsverlauf mit früherem Erkrankungsalter und höherer Schwere und Chronizität der Symptomatik, sowie eine deutlich höhere Therapieresistenz auf (siehe Abschnitt 2.2.2). Es wird daher diskutiert, ob diese Patient*innen eine Subgruppe der Patient*innen mit Depression darstellen, bei deren Behandlung es anderer Therapieansätze bedarf (Teicher & Samson, 2013). Es besteht jedoch eine bedeutende Forschungslücke bezüglich möglicher psychologischer Mechanismen des Zusammenhangs zwischen Kindesmisshandlung und Entstehung und Aufrechterhaltung der Psychopathologie, an denen in der therapeutischen Praxis angesetzt werden kann. Wie zuvor beschrieben, haben einige klinische Theorien und psychotherapeutischen Modelle dieses wichtige Thema aufgegriffen (z.B. die theoretischen Modelle hinter den CBASP und CFT Therapieansätzen, siehe Abschnitte 2.3.2.1 und 2.3.3.1). Diese Modelle wurden größtenteils aus Erfahrungen in der therapeutischen Praxis abgeleitet und es bedarf noch weiterer empirischer Forschung zur Untersuchung ihrer Annahmen.

Angesichts der hohen Prävalenz von Kindesmisshandlung bei Patient*innen mit Depression sowie dem sehr hohen Leidensdruck und den geringeren Therapieerfolgen in der Subgruppe der Patient*innen mit Erfahrungen von Kindesmisshandlung (Nelson et al., 2017) ist die Untersuchung psychologischer Mechanismen von großer Relevanz. Abgeleitet aus den theoretischen Modellen der CBASP- und CFT-Ansätze (siehe Abschnitte 2.3.2.1 und 2.3.3.1) werden in den hier vorgestellten Studien daher interpersonelle Probleme, Veränderungen in der Empathie und der sozialen Kognition, ein geringes Selbstmitgefühl und Defizite in der Emotionsregulation als potenzielle psychologische Mechanismen untersucht.

Ziel 3: Untersuchung der Unterschiede zwischen der persistierenden depressiven Störung und der episodischen Depression

Das CBASP-Modell (Abschnitt 2.3.2.1) geht davon aus, dass Patient*innen mit einer persistierenden depressiven Störung (PDD) im Vergleich zu Patient*innen mit einer episodischen Depression (ED) besonders häufig über Vorerfahrungen von Kindesmisshandlung berichten. Es gibt jedoch wenige empirische Befunde zu dieser Annahme und diese zeigten sich inkonsistent (Köhler et al., 2019). Zudem geht McCullough in seinem Modell davon aus, dass sich Patient*innen mit einer PDD von Patient*innen mit einer ED in verschiedenen Aspekten der sozialen Kognition und in ihrem interpersonellen Verhalten unterscheiden (McCullough, 2003). Nur wenige Studien haben diese theoretischen Annahmen jedoch bisher empirisch untersucht.

3.2 Fragestellungen der einzelnen Studien

Im Folgenden wird beschrieben, wie diese drei Haupt-Ziele von den vier Dissertations-Studien adressiert werden (vgl. Abbildung 5), wobei die spezifischen Fragestellungen der vier Studien benannt werden.

Studie I ist Teil des Forschungsprojektes FOR 2107. Die Rolle der fünf spezifischen Misshandlungsformen werden bei Patient*innen mit ED und PDD, sowie bei Patient*innen mit Schizophrenie und Bipolarer Störung und bei gesunden Proband*innen untersucht. Dabei werden folgende Fragestellungen geprüft:

Studie I:

- Unterscheiden sich Patient*innen mit einer Depression von Patient*innen mit einer Schizophrenie oder einer Bipolaren Störung in der Prävalenz der verschiedenen Misshandlungsformen?
- Bestehen Unterschiede zwischen den Subgruppen der Patient*innen mit einer PDD und Patient*innen mit einer ED in der Prävalenz der Misshandlungsformen?
- Gibt es spezifische Zusammenhänge zwischen bestimmten Misshandlungsformen und bestimmten Symptom-Clustern?
- Sagt Kindesmisshandlung ein früheres Erkrankungsalter in den untersuchten Patient*innen-gruppen vorher?

In dieser Studie werden folglich die Haupt-Ziele 1 und 3 adressiert

Studie II ist ebenfalls Teil des Forschungsprojektes FOR 2107. Schwerpunkt dieser Studie ist die Untersuchung des Bindungsstils als möglichen Mediator des Zusammenhangs zwischen Kindes-misshandlungsformen und Depression. Die folgenden Fragestellungen werden untersucht:

Studie II:

- Mediieren die Ausprägungen im ängstlichen und vermeidenden Bindungsstil den Zusammenhang zwischen Kindesmisshandlung und Depressionsschwere?
- Wird insbesondere der Zusammenhang zwischen emotionaler Misshandlung und Depression durch den Bindungsstil mediiert?
- Gibt es eine sequenzielle Mediation des Effektes von Kindesmisshandlung auf Depression über den Bindungsstil und eine verringerte wahrgenommene soziale Unterstützung?

In dieser Studie werden folglich Haupt-Ziele 1 und 2 adressiert.

Für Studie III wurden stationäre und ambulante Patient*innen mit ED und PDD, sowie gesunde Kontrollproband*innen rekrutiert. Ziel der Studie III ist es, McCulloughs theoretische Annahmen empirisch zu testen. Folgende spezifische Fragestellungen werden geprüft:

Studie III:

- Zeigen Patient*innen mit PDD im Vergleich zu Patient*innen mit ED und gesunden Proband*innen Veränderungen in der sozialen Kognition und stärkere interpersonelle Probleme?
- Berichten Patient*innen mit PDD im Vergleich zu Patient*innen mit ED und gesunden Proband*innen häufiger von Kindesmisshandlung?
- Besteht ein Zusammenhang zwischen Kindesmisshandlung und den Veränderungen in der sozialen Kognition und den interpersonellen Problemen?
- Mediieren sozial-kognitive Variablen und interpersonelle Probleme den Zusammenhang zwischen Kindesmisshandlung und Depression?

In dieser Studie werden folglich die Haupt-Ziele 2 und 3 adressiert.

Studie IV erfolgt im Rahmen der Interventionsstudie *CBASPersonalized* unserer Arbeitsgruppe. In Studie IV werden sowohl die fünf spezifischen Misshandlungsformen als auch vier potenzielle psychologische Mechanismen untersucht. Folgende Fragestellungen werden geprüft:

Studie IV:

- Sagt Kindesmisshandlung stärkere interpersonelle Probleme, mehr empathischen Distress, Emotionsregulations-Schwierigkeiten und ein geringeres Selbstmitgefühl voraus?
- Bestehen diese Zusammenhänge insbesondere mit emotionalem Missbrauch und emotionaler Vernachlässigung?
- Sagen Veränderungen in den untersuchten Mechanismus-Variablen über den Therapieverlauf eine Verbesserung der depressiven Symptomatik voraus?
- Welche Veränderungen in den psychologischen Mechanismus-Variablen hängen besonders eng mit einer Verbesserung der depressiven Symptomatik zusammen?

In dieser Studie werden folglich die Haupt-Ziele 1 und 2 adressiert.

4 Zusammenfassung der Studien

4.1 Studie I:

Struck, N., Krug, A., Yuksel, D., Stein, F., Schmitt, S., Meller, T., Brosch, K., Dannlowski, U., Nenadic, I., Kircher, T., Brakemeier, E.-L., 2020. Childhood maltreatment and adult mental disorders – the prevalence of different types of maltreatment and associations with age of onset and severity of symptoms. *Psychiatry Research*.

Hintergrund: Kindesmisshandlung wurde in Kohortenstudien konsistent mit einem erhöhten Risiko für die Entstehung zahlreicher psychischer Störungen in Verbindung gebracht (Green et al., 2010; Kessler et al., 2010). Mehrere Studien weisen zudem darauf hin, dass Kindesmisshandlung auch einen ungünstigen Verlauf dieser Störungen vorhersagt, wie z.B. ein früheres Erkrankungsalter, sowie eine höhere Chronizität und Symptomschwere (Agnew-Blais & Danese, 2016; Nelson et al., 2017; Trotta, Murray, & Fisher, 2015). Allerdings untersuchten die meisten Studien bisher nur den Zusammenhang zwischen einer einzelnen Misshandlungsform oder einem Gesamtwert der Kindesmisshandlung und einer spezifischen psychischen Störung, sodass noch Forschungsbedarf bzgl. der spezifischen Effekte und Prävalenzen einzelner Misshandlungsformen besteht. In der vorliegenden Studie untersuchen wir daher die Prävalenz fünf verschiedener Misshandlungsformen (emotionaler Missbrauch, emotionale Vernachlässigung, sexueller Missbrauch, körperlicher Missbrauch, körperliche Vernachlässigung) in verschiedenen Patient*innengruppen. Zudem analysieren wir, inwiefern die fünf spezifischen Misshandlungsformen die aktuelle Symptomschwere verschiedener Symptomcluster vorhersagen. Zuletzt wird geprüft, ob Kindesmisshandlung und spezifische Misshandlungsformen ein jüngeres Erkrankungsalter in den verschiedenen Patient*innengruppen vorhersagen.

Methode: Patient*innen mit einer akuten, teil-remittierten oder remittierten Diagnose einer Schizophrenie/Schizoaffektiven Störung (SZ; *n* = 107), Bipolaren Störung (BD; *n* = 103) oder Depression (MDD; *n* = 604), sowie gesunde Kontrollproband*innen (HC; *n* = 715) wurden im Rahmen des multizentrischen Forschungsprojektes FOR 2107 rekrutiert (Kircher et al., 2018). In der Gruppe der Patient*innen mit Depression wurden zusätzlich die beiden Subgruppen der Patient*innen mit akuter nicht-chronischer MDD (*n* = 195) und akuter persistierender Depression (PDD; *n* = 65) getrennt untersucht. Kindesmisshandlung wurde mit dem *Childhood Trauma Questionnaire* (CTQ-SF; Bernstein et al., 2003) erfasst. Die klinische Diagnostik erfolgte für alle Proband*innen mit klinischen Interviews und einer breiten Batterie klinischer Fragebögen. Unterschiede zwischen den Diagnose-Gruppen in der Prävalenz der verschiedenen Misshandlungsformen wurden mit ANOVA geprüft. Mit einem Pfadmodell wurden spezifische Zusammenhänge zwischen Misshandlungsformen und Symptomclustern untersucht

und hierarchische lineare Regressionen wurden eingesetzt, um die Vorhersage des Erkrankungsalters durch Kindesmisshandlung zu prüfen.

Ergebnisse: Die drei Patient*innengruppen (SZ, BD, MDD) berichteten sign. mehr Kindesmisshandlung und höhere Werte für alle fünf Misshandlungsformen als HCs. Der Unterschied zwischen HCs und den Patient*innengruppen war besonders groß für emotionalen Missbrauch (*d* = 0.90–1.01), emotionale Vernachlässigung (*d* = 0.90–1.15) und körperliche Vernachlässigung (*d* = 0.76–0.95). Es gab dagegen keine Unterschiede in der Prävalenz der Misshandlungsformen zwischen den drei Haupt-Patient*innengruppen. In der HC-Gruppe berichteten 15.0% der Teilnehmer, dass sie mind. eine Form von mind. mittelschweren bis schweren Kindesmisshandlung ausgesetzt waren, Entsprechendes berichteten 56.1% der Patient*innen in der SZ-Gruppe, 56.3% in der BD-Gruppe und 57.1% in der MDD-Gruppe. Bei separater Betrachtung der Subgruppe der Patient*innen mit PDD zeigte sich, dass 75.4% dieser Patient*innen über mind. eine Form der Kindesmisshandlung berichteten und auch in allen fünf Misshandlungsformen signifikant höhere Werte aufwiesen, sowie häufiger mehreren Misshandlungsformen ausgesetzt waren als Patient*innen der anderen Gruppen. Im Pfad-Modell zur Untersuchung der Zusammenhänge zwischen Misshandlungsformen und Symptom-Clustern über die gesamte Stichprobe zeigte sich, dass die Depressionsschwere signifikant von emotionalem Missbrauch (β = .22) und emotionaler Vernachlässigung (β = .29) vorhergesagt wurde. Angst-Symptome wurden von emotionalem Missbrauch (β = .20), emotionaler Vernachlässigung (β = .17), sowie sexuellem Missbrauch (β = .09) hervorgesagt. Es zeigte sich ein Zusammenhang zwischen positiven SZ Symptomen und körperlicher Vernachlässigung (β = .18) sowie zwischen negativen SZ Symptomen und emotionaler (β = .25) und körperlicher Vernachlässigung (β = .10). Körperlicher Missbrauch sagte niedrigere Manie-Werte vorher (β = -.09), während körperliche Vernachlässigung höhere Manie-Werte (β = .09) vorhersagte. Der gesamt CTQ-Wert sagte ein jüngeres Erkrankungsalter bei Patient*innen mit BD (β = -.19) und MDD (β = -.19) vorher.

Diskussion: Es zeigte sich eine sehr hohe Prävalenz von Kindesmisshandlung in verschiedenen Patient*innengruppen und Patient*innen mit einer PDD scheinen noch einmal häufiger von allen Misshandlungsformen betroffen zu sein. Die Ergebnisse dieser Studie betonen zudem die Bedeutung des emotionalen Missbrauchs und der emotionalen Vernachlässigung, die in allen Patient*innengruppen besonders häufig berichtet und mit der Symptomschwere der affektiven Symptome eng verknüpft waren. Es lässt sich schließen, dass die hohe Prävalenz von Kindesmisshandlung in Patient*innen mit verschiedensten psychischen Erkrankungen sowie die Zusammenhänge mit einer höheren Symptomschwere und früherem Erkrankungsalter die Bedeutung von Präventionsprogrammen sowie einer Berücksichtigung dieses Themas in der klinischen Forschung und Praxis hervorheben.

4.2 Studie II:

Struck, N., Krug, A., Feldmann, M., Yuksel, D., Stein, F., Schmitt, S., Meller, T., Brosch, K., Dannlowski, U., Meinert, S., Opel, N., Lemke, H., Waltemate, L., Nenadic, I., Kircher, T., Brakemeier, E.-L., 2020. Attachment and social support mediate the association between childhood maltreatment and depressive symptoms. *Journal of Affective Disorders*. 273, 310–317.

Hintergrund: Bisherige Forschung weist konsistent auf einen Zusammenhang zwischen Kindesmisshandlung und Depressionen im Erwachsenenalter hin (Infurna et al., 2016; Nelson et al., 2017). Psychologische Variablen, die diesen Zusammenhang vermitteln, sind dagegen noch wenig untersucht. Als ein möglicher Mediator wird der Bindungsstil diskutiert (Hankin, Kassel, & Abela, 2005; Schierholz et al., 2016). Die Bindungstheorie nach John Bowlby (1988) geht davon aus, dass Kinder einen sicheren Bindungsstil entwickeln, wenn relevante Bezugspersonen warm und sensibel sind, während eine unsichere Bindung wahrscheinlicher bei abweisendem und unsensiblen Verhalten entsteht. Aus diesen frühen Erfahrungen würden bis ins Erwachsenenalter fortdauernde interpersonelle Erwartungen entstehen (*inner working model*). Bindungsstile im Erwachsenenalter können in einem Modell mit zwei kontinuierlichen Dimensionen konzeptualisiert werden: Angst und Vermeidung in nahen Beziehungen (Mikulincer & Shaver, 2003). In einer Vielzahl empirischer Studien konnte bereits gezeigt werden, dass unsichere Bindung – insbesondere ängstliche Bindung und, weniger konsistent, vermeidende Bindung – mit depressiven Symptomen und der Entstehung von Depressionen zusammenhängt (Mikulincer & Shaver, 2007). Bisher wurde dagegen erst in einer online Studie untersucht (Schierholz et al., 2016), inwiefern bei depressiven Patient*innen der Zusammenhang zwischen Kindesmisshandlung und Depressionsschwere durch den Bindungsstil vermittelt wird. Keine Studie hat dabei bisher zwischen verschiedenen Formen der Kindesmisshandlung unterschieden, obwohl unterschiedliche Auswirkungen wahrscheinlich sind. In der vorliegenden Studie differenzieren wir daher zwischen fünf verschiedenen Formen der Kindesmisshandlung: emotionalem Missbrauch, emotionaler Vernachlässigung, körperlichem Missbrauch, körperlicher Vernachlässigung und sexuellem Missbrauch (Butchart et al., 2006). Basierend auf theoretischen Annahmen von Riggs (2010) und ersten empirischen Befunden (Lowell, Renk, & Adgate, 2014; Muller et al., 2012) nehmen wir an, dass insbesondere der Effekt von emotionaler Misshandlung auf die Depressionsschwere durch den Bindungsstil mediiert wird. Zudem gehen wir von einer sequenziellen Mediation aus: wir nehmen an, dass Kindesmisshandlung über einen unsichereren Bindungsstil zu niedriger wahrgenommener Unterstützung führt und darüber zu einer höheren Depressionsschwere.

Methode: Diese Studie ist Teil des multizentrischen Forschungsprojektes FOR 2107 (Kircher et al., 2018). 580 Proband*innen (Alter: *M*=37.2 Jahre, *SD*=13.4, Geschlecht: 62% weiblich) mit einer akuten (47%), teilremittierten (27%) oder remittierten (26%) Depression konnten in die Analysen einbezogen werden. Das Vorliegen einer aktuellen oder früheren Diagnose einer Depression wurde mit dem Strukturierten

Klinischen Interview für DSM-IV (SKID I; Wittchen, Wunderlich, Gruschwitz, & Zaudig, 1997) durch geschulte Psychologen beurteilt. Die Schwere aktueller depressiver Symptome wurde mit dem Beck-Depressions-Inventar (Hautzinger, Bailer, Worall, & Keller, 1995) erfasst und die fünf Formen von Kindesmisshandlung retrospektiv mit dem *Childhood Trauma Questionnaire* (CTQ-SF; Bernstein et al., 2003; Wingenfeld et al., 2010). Ängstliche und vermeidende Bindung im Erwachsenenalter wurden mit dem *Relationship Scales Questionnaire* beurteilt (RSQ; Griffin & Bartholomew, 1994; Steffanowski et al., 2001), wahrgenommene soziale Unterstützung mit dem Fragebogen zur Sozialen Unterstützung (F-SozU; Fydrich, Sommer, & Brähler, 2007). Zunächst wurden bivariate Korrelationen für alle Studien-Variablen berechnet. Zur Untersuchung des angenommenen Mediations-Modells mit Kindesmiss-handlung als unabhängiger Variable, den beiden Bindungsdimensionen (Vermeidung/Angst) als Mediatoren und der Depression-Schwere als abhängiger Variable, wurde eine Mediationsanalyse unter Verwendung des PROCESS-Makros für SPSS (Hayes, 2017) durchgeführt. Anschließend wurden zwei Pfadmodelle mit SPSS AMOS 25 getestet (Arbuckle, 2017). In beiden Modellen dienten die fünf Formen der Kindesmisshandlung als unabhängige Variablen, die zwei Bindungs-Dimensionen als Mediatoren und die Depressionsschwere als abhängige Variable. Im 1. Modell wurden alle Pfade zugelassen (saturiertes Modell), während im theoretischen Modell die Pfade von körperlichem Missbrauch, körperlicher Vernachlässigung und sexuellem Missbrauch zu den Bindungsvariablen auf 0 fixiert wurde – entsprechend der Annahme, dass nur der Zusammenhang von emotionaler Misshandlung auf die Depressionsschwere über Bindung vermittelt wird. Zuletzt wurde das angenommene sequenzielle Mediationsmodell mit Kindesmisshandlung als unabhängiger Variable, unsicherer Bindung und wahrgenommener sozialer Unterstützung als sequenzielle Mediatoren und Depressionsschwere als abhängiger Variable getestet.

Ergebnisse: Bindungs-Vermeidung und Bindungs-Angst mediierten partiell den Effekt von Kindesmisshandlung auf Depression. In dem Pfadmodell mit den fünf verschiedenen Formen der Kindesmisshandlung als Prädiktoren zeigten sich signifikante indirekte Effekt von emotionalem Missbrauch über Bindungs-Angst auf die Depressionsschwere ($\beta = 0.05$, 95% CI [0.02, 0.08]) und von emotionaler Vernachlässigung über Bindungs-Vermeidung auf die Depressionsschwere ($\beta = 0.09$, 95% CI [0.05, 0.14]). Das theoretisch angenommene Modell, in dem nur der Zusammenhang von emotionaler Misshandlung auf die Depressionsschwere durch die Bindungs-Variablen mediiert wird, zeigte einen guten Modellfit (CFI = 0.998, RMSEA = 0.028). Die Ergebnisse unterstützen zudem die Annahme einer sequenziellen Mediation von Kindesmisshandlung über Bindungs-Unsicherheit und niedrigerer wahrgenommener sozialer Unterstützung auf die Depressionsschwere.

Diskussion: Die vorliegende Studie weist darauf hin, dass der Bindungsstil ein bedeutender Mediator des Zusammenhangs zwischen emotionaler Misshandlung (Vernachlässigung und Missbrauch) und

Depressionsschwere zu sein scheint. Diese Befunde stimmen mit Theorien und früheren Studien überein, die von einer besonderen Rolle der emotionalen Misshandlung bei der Entstehung von Bindungs-Unsicherheit ausgehen (Lowell et al., 2014; Muller et al., 2012; Riggs, 2010). Zudem sprechen die Ergebnisse dafür, dass der Effekt von Bindungs-Unsicherheit auf die Schwere der Depression wiederum durch wahrgenommene soziale Unterstützung mediiert wird. Dies ist einerseits übereinstimmend mit früheren Befunden, dass unsicher gebundene Personen häufiger interpersonell dysfunktionales Verhalten zeigen (Mikulincer & Shaver, 2003) und unzufriedenstellende soziale Interaktionen erleben (Klein et al., 2020). Gleichzeitig stimmt es auch mit Befunden überein, dass niedrige wahrgenommene Unterstützung mit höherer Symptomschwere in psychisch erkrankten Personen zusammenhängt (Cloitre, Stovall-McClough, Zorbas, & Charuvastra, 2008; Hankin, 2005). Die Ergebnisse weisen auf eine besondere Rolle unsicherer Bindung bei depressiven Patient*innen mit einer Geschichte von emotionaler Misshandlung hin und verdeutlichen, dass gerade bei diesen Patient*innen neue Beziehungserfahrungen, wie z.B. auch heilsame Erfahrungen in der therapeutischen Beziehung, von besonderer Bedeutung sein könnten.

4.3 Studie III:

Struck, N., Gärtner, T., Kircher, T., Brakemeier, E.-L. (under review). Social cognition and interpersonal problems in persistent depressive disorder vs. episodic depression: the role of childhood maltreatment. *Frontiers in Psychiatry.*

Hintergrund: Die persistierende depressive Störung (PDD) ist durch depressive Symptome, die mindestens über den Verlauf von zwei Jahren anhalten, gekennzeichnet und betrifft etwa 30% der depressiven Patient*innen (Murphy & Byrne, 2012; Nübel et al., 2020). Sie ist im Vergleich zur episodischen Depression (ED) mit einem früheren Erkrankungsalter, höheren Raten komorbider psychischer und somatischer Störungen, häufigeren Suizidversuchen und einer höheren Therapieresistenz assoziiert (Köhler et al., 2019). Über psychologische Merkmale, die sich zwischen der PDD und der ED unterscheiden, ist jedoch bisher wenig bekannt. Angelehnt an das interpersonelle Modell der chronischen Depression von James McCullough (2003) untersuchen wir Unterschiede in der sozialen Kognition und in zwischenmenschlichen Problemen als mögliche Risikofaktoren für einen chronischen Verlauf depressiver Erkrankungen. McCullough postuliert in seinem Modell, dass Erfahrungen von Ablehnung, Misshandlung und Vernachlässigung in der Kindheit zu einer Abkopplung von der interpersonellen Umwelt (interpersonelle Mauer), einem passiv-feindseligen interpersonellen Stil und Veränderungen in der Theory of Mind (ToM) und Empathie führen (McCullough Jr et al., 2015). Dies trage wiederum zur Entstehung und Aufrechterhaltung der PDD bei. Nur wenige Studien überprüften bisher diese theoretischen Annahmen empirisch. In der vorliegenden Studie untersuchen wir daher die Hypothesen, dass Patient*innen mit PDD im Vergleich zu Patient*innen mit ED und gesunden Proband*innen Defizite in ihren ToM Fertigkeiten, stärkeren empathischen Distress und einen stärkeren negativen Emotionserkennungs-Bias aufweisen, sowie häufiger interpersonelle Probleme berichten. Darüber hinaus wird untersucht, ob diese Unterschiede auf Erfahrungen von Kindesmisshandlung zurückzuführen sind. Es wird angenommen, dass Patient*innen mit PDD häufiger Erfahrungen von Kindesmisshandlung berichten als Patient*innen mit ED und gesunde Kontroll-proband*innen. Zudem nehmen wir an, dass Kindesmisshandlung mit Defiziten in der ToM, erhöhtem empathischen Distress, einem stärkeren negativen Emotionserkennungs-Bias und stärkeren interpersonellen Problemen zusammenhängt.

Methode: In die querschnittliche Studie wurden akut erkrankte Patient*innen mit einer PDD (n = 34) oder einer ED (n = 38), sowie gesunde Kontrollproband*innen (n = 39) eingeschlossen, die mit dem Strukturierten Klinischen Interview für DSM-IV und einem zusätzlichen Life-Chart-Interview diagnostiziert wurden. Mit ANOVA wurde getestet, ob Unterschiede zwischen den drei Gruppen in verschiedenen Facetten der Empathie (erfasst mit dem *Interpersonal Reactivity Index*; IRI; Davis, 1983),

der affektiven Theory of Mind (*Reading the Mind in the Eyes Test*; RMET; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), der Emotionserkennung (*Facial Expression Recognition Task*; FERT; Harmer, 2009), den interpersonellen Problemen (Inventar Interpersoneller Probleme; IIP; Horowitz et al., 2016) und Erfahrungen von Kindesmisshandlungen (*Childhood Trauma Questionnaire*; CTQ-SF; Bernstein et al., 2003) bestehen. Mit partiellen Korrelationen kontrolliert für Alter und Geschlecht, wurde der Zusammenhang zwischen Kindesmisshandlung und den psychologischen Konstrukten getestet. Zusätzlich wurde ein Mediations-Modell geprüft, mit Kindesmisshandlung als Prädiktor der Depressionsschwere, mediiert durch empathischen Distress und interpersonelle Probleme.

Ergebnisse: Patient*innen mit PDD berichteten signifikant mehr empathischen Distress als Patient*innen mit ED (d = 0.54) und gesunde Proband*innen (d = 1.34). Es zeigten sich dagegen keine Unterschiede zwischen den Gruppen in der affektiven Theory of Mind. Beide Patient*innengruppen erkannten häufiger Ärger in Gesichtern (ED vs. HC: d = 0.67; PDD vs. HC: d = 0.61) und berichteten mehr interpersonelle Probleme (ED vs. HC: d = 1.49; PDD vs. HC: d = 1.90), jedoch jeweils ohne die erwarteten Unterschiede zwischen den beiden Patient*innengruppen. Wie angenommen, berichteten Patient*innen mit PDD signifikant mehr Kindesmisshandlung als Patient*innen mit ED (d = 0.59) und gesunde Kontrollproband*innen (d = 1.17). Kindesmisshandlung war positiv korreliert mit der aktuellen Depressionsschwere (r = .52, p < .001), sowie mit empathischem Distress (r = .45, p < .001) und zwischenmenschlichen Problemen (r = .43, p < .001), jedoch nicht mit der affektiven ToM (r = −.08, p = .45). Es zeigte sich zudem im Trend ein negativer Zusammenhang zwischen Kindesmisshandlung und dem Erkennen von Freude in Gesichtern (r = −.20, p = .055). Im untersuchten Mediationsmodell zeigten sich zudem signifikante indirekte Effekte von Kindesmisshandlung auf die Depressionsschwere über zwischenmenschliche Probleme, β = 0.17, 95% CI [0.09, 0.26], und über empathischen Distress, β = 0.16, 95% CI [0.06, 0.27]. Der direkte Effekt von CM auf Depressionen blieb auch nach Einbeziehung der Mediatoren signifikant, β = 0.17, p = .01, was für eine partielle Mediation spricht.

Diskussion: Die Ergebnisse der vorliegenden Studie weisen darauf hin, dass depressive Patient*innen keine Defizite bei der Dekodierung affektiver Zustände anderer Personen zeigen (affektive ToM), sie jedoch Schwierigkeiten haben, mit dem negativen emotionalen Zustand oder dem Leid einer anderen Person umzugehen. Beide Patient*innengruppen berichteten, dass sie sich von emotional angespannten Situationen schnell überfordert fühlten (hoher empathischer Distress), wobei dies bei Patient*innen mit PDD im Vergleich zur ED noch ausgeprägter war. Dieses Ergebnis passt zu aktuellen Befunden, die darauf hinweisen, dass es bei Vorliegen von Defiziten in der Gefühlsregulation (Powell, 2018), einem hohen Maß an Alexithymie (Banzhaf et al., 2018) und generalisierter Schuld und Scham (Gambin & Sharp, 2018) dazu kommen kann, dass eine hohe affektive Empathie zu Gefühlen der Überforderung und Depressionen beiträgt. Wie angenommen, berichteten Patient*innen mit

Depressionen über mehr interpersonelle Probleme als gesunde Kontrollproband*innen. Es zeigten sich nicht die erwarteten Unterschiede zwischen ED und PDD im Bereich der interpersonellen Probleme, jedoch deskriptiv ein Trend, dass PDD-Patient*innen mehr Probleme resultierend aus submissiv-passivem Verhalten berichteten. Die Befunde sprechen zudem dafür, dass insbesondere interpersonelle Probleme und empathischer Distress den Zusammenhang zwischen Kindesmisshandlung und Depressionen mediieren. Hieraus lässt sich für die klinische Praxis ableiten, dass der Abbau sozialer Ängste und der Aufbau sozialer Kompetenzen bei dieser Patient*innengruppe von hoher Bedeutung zu sein scheint. Hierbei erscheint es insbesondere sinnvoll, gezielt ein aktiveres Auftreten in konkreten schwierigen Situationen zu üben, wie es in der Situationsanalyse nach CBASP (McCullough Jr, 2003) umgesetzt wird.

4.4 Studie IV:

Struck, N., Feldmann, M., Hof, J.-T., Schamong, I., Netter, A.-L., Gärtner, T., Brakemeier, E.-L. (submitted). Interpersonal problems, empathic distress, self-compassion, and emotion regulation in persistent depressive disorder: the role of childhood maltreatment. *Cognitive Therapy and Research*.

Hintergrund: Kindesmisshandlung ist ein bedeutender Risikofaktor für die Entstehung von Depressionen und insbesondere von persistierend depressiven Störungen (PDD) (Nelson et al., 2017). Die psychologischen Mechanismen dieses Zusammenhangs sind jedoch nach wie vor kaum verstanden. Basierend auf theoretischen Annahmen und empirischen Befunden werden in dieser Studie vier potenzielle psychologische Mechanismen untersucht: 1.) interpersonelle Probleme, 2.) empathischer Distress, 3.) Emotionsregulation und 4.) Selbstmitgefühl. Für alle vier potenziellen Mechanismus-Variablen liegen bereits empirische Befunde vor, die darauf hinweisen, dass diese sowohl mit Kindesmisshandlung als auch mit der Schwere der Depression korrelieren (Bird et al., 2018; Christ et al., 2019; Diedrich et al., 2017; Hopfinger et al., 2016; Ross et al., 2019). Das erste Ziel dieser Studie besteht in der Prüfung der Hypothese, dass insbesondere emotionale Misshandlung mit den vier Mechanismus-Variablen zusammenhängt. Das zweite Ziel besteht darin, zu untersuchen, ob die vier potenziellen Mechanismus-Variablen den Effekt von Kindesmisshandlung auf die Depression mediieren. Hierfür soll einerseits ein sequenzielles Mediations-Modell geprüft werden, dass von einem indirekten Pfad von emotionalem Missbrauch über reduziertes Selbstmitgefühl und über verstärkte Emotionsregulations-Schwierigkeiten zu einer höheren Depressionsschwere ausgeht. Andererseits wird geprüft, ob empathischer Distress und interpersonelle Probleme den Effekt von emotionalem Missbrauch auf Depression mediieren. Das dritte Ziel der Studie besteht in der Prüfung, ob Veränderungen der vier Mechanismus-Variablen im Verlauf einer stationären Therapie Veränderungen in der Schwere der Depression hervorsagen. Es wird exploriert, welche Veränderungen besonders eng mit Veränderungen der Depression verknüpft sind.

Methode: Die Daten für die vorliegende Studie wurden im Rahmen des laufenden *CBASPersonalized* Projektes in der Schön Klinik Bad Arolsen erhoben. Dabei handelt es sich um eine Studie zur Evaluation eines sechswöchigen stationäres Behandlungsprogramms, welches Strategien der *Cognitive Behavioral Analysis System of Psychotherapy* (CBASP) Therapie in Abhängigkeit der Komorbiditäten mit weiteren Therapieelementen augmentiert. Patient*innen mit einer PDD (*N* = 96) wurden zu Beginn der stationären Behandlung mit dem Strukturierten Klinischen Interview für DSM-IV (SKID; Wittchen et al., 1997) diagnostiziert. Kindesmisshandlung wurde zu Beginn mit dem *Childhood Trauma Questionnaire* (CTQ-SF; Bernstein et al., 2003) erfasst. Die Depressionsschwere sowie folgende Mechanismus-Variablen wurden in der ersten und letzten Woche der Behandlung erhoben: Interpersonelle Probleme mit dem Inventar Interpersonaler Probleme (IIP; Horowitz et al., 2016), empathischer Distress mit dem *Interpersonal Reactivity Index* (IRI; Davis, 1983), Selbstmitgefühl mit der *Self-Compassion Scale* (SCS;

Neff, 2003), und Emotionsregulations-Schwierigkeiten mit der *Difficulties in Emotionregulation Scale* (DERS; Gratz & Roemer, 2004). Zur Testung spezifischer Zusammenhänge zwischen den Misshandlungsformen und den Mechanismus-Variablen wurde ein Pfadmodell mit SPSS AMOS 25 getestet (Arbuckle, 2017). Zur Prüfung der einzelnen Mediations-Modelle wurden Mediationsanalysen mit dem PROCESS-Makros für SPSS (Hayes, 2017) durchgeführt. Zuletzt wurde die Vorhersage der Veränderung der Depressionsschwere durch Veränderungen der Mechanismus-Variablen mit Hilfe von hierarchischen Regressions-Analysen untersucht.

Ergebnisse: Emotionaler Missbrauch sagte zu Beginn der Behandlung verstärkte interpersonelle Probleme ($\beta = .27$, $p = .02$) und ein verringertes Selbstmitgefühl ($\beta = -.45$, $p < .001$) vorher. Die Schwere der Depression (vor Behandlung) korrelierte mit allen vier Mechanismus-Variablen: mit großer Effektstärke mit interpersonellen Problemen ($r = .50$, $p < .001$) und Emotionsregulations-Schwierigkeiten ($r = .50$, $p < .001$) und mit mittlerer Effektstärke mit empathischem Distress ($r = .35$, $p = .003$) und Selbstmitgefühl ($r = -.37$, $p = .001$). Der angenommene indirekte Pfad von emotionalem Missbrauch über verringertes Selbstmitgefühl und verstärkte Emotionsregulations-Schwierigkeiten auf die Schwere der Depression wurde von den Ergebnissen gestützt, $\beta = 0.14$, 95% CI [0.04, 0.27]. Auch zeigte sich der angenommen indirekte Pfad von emotionalem Missbrauch über interpersonelle Probleme auf die Schwere der Depression, $\beta = 0.12$, 95% CI [0.04, 0.19], während der indirekte Pfad über empathischen Distress nicht signifikant war, $\beta = 0.07$, 95% CI [-0.002, 0.20]. Veränderungen in der Schwere der Depression über die Behandlung korrelierten mit den Veränderungs-Scores der interpersonellen Probleme ($r = .30$, $p = .021$), des Selbstmitgefühls ($r = -.33$, $p = .009$) und der Emotionsregulation ($r = .35$, $p = .007$). In hierarchischen linearen Regressionen sagten sowohl die Veränderung im Selbstmitgefühl ($\beta = -.29$, $p = .021$) als auch Veränderungen in den interpersonellen Problemen ($\beta = .29$, $p = .020$) über den Prä-Depressionswert hinaus Veränderungen in der Depressionsschwere voraus, wenn sie einzeln eingeschlossen wurden. Durch den gemeinsamen Einschluss der beiden Mechanismus-Variablen, konnte jedoch die Varianzaufklärung nicht signifikant weiter erhöht werden.

Diskussion: Interpersonelle Probleme, ein verringertes Selbstmitgefühl und Probleme bei der Emotionsregulation scheinen bei der PDD eine wichtige Rolle zu spielen und insbesondere mit emotionalem Missbrauch in der Kindheit zusammenzuhängen. Diese Befunde stützen die theoretischen Modelle von CBASP (McCullough Jr., 2003) und der *Compassion Focused Therapy* (CFT; Gilbert, 2010). Die Förderung von Fertigkeiten des Selbstmitgefühls, der Emotionsregulation sowie interpersoneller Kompetenzen zeigen sich als vielversprechende Ansatzpunkte bei der Therapie von Patient*innen mit PDD und frühen Misshandlungserfahrungen. In weiteren Studien sollten mit Hilfe von längsschnittlichen Forschungs-Designs mögliche Interaktionen und sequenziellen Effekte, die zwischen den untersuchten Mechanismus-Variablen untereinander bestehen könnten, beleuchtet werden.

5 Diskussion

5.1 Zusammenfassung und Diskussion der Ergebnisse

Ziel der vorliegenden Arbeit war es, die Auswirkungen von Kindesmisshandlung auf die depressive Symptomatik im Erwachsenenalter zu untersuchen. Im Folgenden werden die Studienergebnisse anhand der drei Haupt-Ziele der Dissertation diskutiert.

Untersuchung differentieller Auswirkungen der fünf spezifischen Misshandlungsformen

Dieses Ziel wurden in den Studien I, III und IV adressiert. In Studie I zeigte sich zwischen den drei Haupt-Diagnosegruppen der Patient*innen mit Depression, Bipolarer Störung und Schizophrenie keine Unterschiede in der Prävalenz der verschiedenen Misshandlungsformen. Erfahrungen von emotionalem Missbrauch, emotionaler Vernachlässigung und körperlicher Vernachlässigung wurden in allen Patient*innengruppen am häufigsten berichtet. Die Prävalenz aller Misshandlungsformen war in den drei Patient*innengruppen höher als in der gesunden Kontrollgruppe. Zudem berichteten Patient*innen mit PDD noch häufiger alle Formen der Kindesmisshandlung als Patient*innen mit ED. Die Betrachtung der Zusammenhänge zwischen Kindesmisshandlungsformen und der Schwere verschiedener Symptom-Cluster zeigte insbesondere, dass emotionaler Missbrauch und emotionale Vernachlässigung stärkere Angst- und Depressions-Symptome vorhersagten. Zudem sagte emotionale und körperliche Vernachlässigung bedeutend eine stärkere Negativsymptomatik und körperliche Vernachlässigung eine stärkere Positivsymptomatik der Schizophrenie vorher. In Studie II zeigten sich spezifische Zusammenhänge zwischen emotionalem Missbrauch und emotionaler Vernachlässigung und ängstlicher und vermeidender Bindung. Auch in Studie IV war insbesondere emotionaler Missbrauch direkt oder indirekt mit interpersonellen Problemen, Selbstmitgefühl und der Emotionsregulation verknüpft.

Zusammenfassend lässt sich festhalten, dass sich im Vergleich zur Schizophrenie und Bipolaren Störung bei der Depression kein spezifisches Muster der Prävalenz von Kindesmisshandlungsformen zeigte und alle Patient*innengruppen stark von Kindesmisshandlung betroffen waren (jeweils ca. 57% der Patient*innen). Dieses Ergebnis erweitert den Befund einer Meta-Analyse, die bereits darauf hinwies, dass die Häufigkeit belastender Kindheitserfahrungen in den drei Störungsgruppen ähnlich zu sein scheint (Palmier-Claus, Berry, Bucci, Mansell, & Varese, 2016). Die Ergebnisse der Dissertationsstudien sprechen zudem dafür, dass insbesondere emotionaler Missbrauch und emotionale Vernachlässigung mit der Schwere der Depression zusammenhängen, was mit früheren Befunden übereinstimmt (Humphreys et al., 2020; Infurna et al., 2016). Zusätzlich zeigte sich über die Studien hinweg, dass insbesondere emotionale Missbrauch auch mit unsicherer Bindung, geringem Selbstmitgefühl, stärkeren interpersonellen Problemen und indirekt über Selbstmitgefühl auch mit Schwierigkeiten in

der Emotionsregulation zusammenhängt. Dies ist übereinstimmend mit dem theoretischen Annahmen von Riggs (2010), die auf der Bindungstheorie basieren. Ihr Modell geht davon aus, dass insbesondere emotionaler Missbrauch durch wichtige Bezugspersonen in der Kindheit zu Bildung einer unsicheren Bindungsorganisation führt, die wiederum die Emotionsregulation beeinträchtigt und die Entstehung negativer *working models* der eigenen Person (als wertlos, unfähig) und anderer Personen (als ablehnend) fördert. Diese führen über maladaptive Bewältigungsstrategien zu langfristigen Problemen, wie z.B. einem geringen sozialen Funktionsniveau und fehlender sozialer Unterstützung (Riggs, 2010).

Untersuchung möglicher Mechanismen des Zusammenhangs zwischen Kindesmisshandlung und Depression

Dieses Ziel wurde in den Studien II, III und IV adressiert. In Studie II wurde die Bindung als Mediator untersucht und es zeigte sich, dass sowohl Angst als auch Vermeidung in nahen Beziehungen wichtige Mediatoren des Zusammenhangs zwischen emotionaler Misshandlung und Schwere der Depression waren. Zudem konnte ein sequenzieller indirekter Effekt von Kindesmisshandlung über Bindungsunsicherheit und geringer wahrgenommener sozialer Unterstützung auf die Schwere der Depression bestätigt werden. Studie III stützte die Hypothese einer Mediation des Effekts von Kindesmisshandlung auf die Depression durch interpersonelle Probleme und empathischen Distress. Dagegen konnte kein Zusammenhang zwischen Kindesmisshandlung und affektiver ToM gezeigt werden. In Studie IV war emotionaler Missbrauch direkt oder indirekt mit verringertem Selbstmitgefühl, stärkeren Emotionsregulations-Schwierigkeiten und interpersonellen Problemen assoziiert. Eine Veränderung dieser Mechanismus-Variablen über den Therapieverlauf sagte zudem die Verbesserung der Depressionsschwere vorher.

Insgesamt stützen die Ergebnisse der vorliegenden Dissertations-Studien die Annahme, dass Bindung, Selbstmitgefühl, Emotionsregulation, interpersonelle Probleme und (mit Einschränkungen) auch empathischer Distress mögliche Mechanismen des Zusammenhangs zwischen Kindesmisshandlung – insbesondere emotionaler Misshandlung – und Depressionen darstellen. Dagegen sprechen sie nicht für die Annahme eines Zusammenhanges zwischen verringerter affektiver ToM und Kindesmiss-handlung. Damit können auch die zugrundeliegenden theoretischen Störungsmodelle der CBASP Therapie (McCullough Jr et al., 2015) und der CFT (Gilbert, 2010) teilweise empirisch gestützt werden. In Bezug auf den CBASP-Ansatz kann die Annahme untermauert werden, dass ein distanziert-submissiver interpersoneller Stil bei Patient*innen mit PDD und Kindesmisshandlungserfahrungen eine wichtige aufrechterhaltende Rolle spielt und daher einen bedeutenden Ansatzpunkt für die Therapie darstellen könnte (McCullough Jr et al., 2015). Übereinstimmend mit den Annahmen der CFT (Gilbert, 2010) zeigt sich, dass auch intrapsychische Faktoren bei depressiven Patient*innen, wie Schwierigkeiten in der Emotionsregulation und ein reduzierte Selbstmitgefühl, ihre Wurzeln in frühen Misshandlungs-

erfahrungen haben und ebenfalls zur Entstehung und Aufrechterhaltung depressiver Symptome beitragen.

Untersuchung der Unterschiede zwischen der persistierenden depressiven Störung und der episodischen Depression

Dieses Ziel wurde in den Studien I und III adressiert. In beiden Studien berichteten Patient*innen mit PDD signifikant häufiger Erfahrungen von Kindesmisshandlung als Patient*innen mit ED (jeweils mit mittlerer Effektstärke). In Studie III zeigten beide depressiven Gruppen im Vergleich zu gesunden Kontrollproband*innen mehr empathische Anteilnahme, mehr empathischen Distress, erkannten häufiger Ärger in Gesichtern und berichteten stärkere interpersonelle Probleme. Unterschiede in der affektiven ToM zwischen Patient*innen und gesunden Proband*innen zeigten sich jedoch nicht. Beim Vergleich zwischen den beiden Depressions-Gruppen zeigte sich jedoch nur ein signifikanter Unterschied bezogen auf höheren empathischen Distress bei Patient*innen mit PDD. Auf Trendebene zeigte sich zudem, dass Patient*innen mit PDD mehr passiv/submissives interpersonelles Verhalten als Patient*inne mit ED berichten.

In zwei unterschiedlichen Stichproben im Rahmen dieser Dissertation berichteten Patient*innen mit PDD bedeutend häufiger Erfahrungen von Kindesmisshandlung als Patient*innen mit ED. Die wenigen bisherige Befunde zu Unterschieden in der Prävalenz von Kindesmisshandlung im Vergleich zwischen PDD und ED zeigten sich dagegen inkonsistent, da eine Studie keine Unterschiede berichtete (Brakemeier et al., 2018), eine weitere nur für emotionalen Missbrauch Unterschiede fand (Sung et al., 2012)(hier bestand die Vergleichsgruppe jedoch nur aus Patient*innen mit einer rezidivierenden Depression) und eine dritte Studie Unterschiede im körperlichen Missbrauch, emotionaler Vernachlässigung, körperlicher Vernachlässigung und einen höherer Gesamtwert der Kindesmisshandlung berichtete (Van Randenborgh et al., 2012). Zu beachten ist, dass nur die Studien von Van Randenborgh et al. (2012) und die Studie II dieser Dissertation ein Life-Chart-Interview einsetzten, um das Vorliegen einer PDD reliable zu bestimmen. Die Effektstärken für den Vergleich des Gesamtwertes der Kindesmisshandlung zwischen PDD und ED lag sowohl in unseren beiden Studien (I und III), als auch bei Van Randenborgh et al. (2012) mindestens im mittleren Bereich, was für das Vorliegen eines bedeutenden Unterschiedes zwischen den beiden Gruppen spricht.

Die Ergebnisse dieser Dissertation weisen zudem darauf hin, dass Patient*innen mit Depression keine Defizite im Empfinden von Empathie zeigen und auch nicht in der affektiven ToM – die Befunde weisen ganz im Gegenteil sogar auf eine höhere affektive Empathie hin. Diese Befunde sind übereinstimmend mit den wenigen bisherigen Studien, die Patient*innen mit ED und PDD in Aspekten der sozialen Kognition verglichen (Domes et al., 2016; Ladegaard, Lysaker, Larsen, & Videbech, 2014; Van

Randenborgh et al., 2012). Patient*innen mit Depression und insbesondere mit PDD scheinen jedoch Schwierigkeiten zu haben, mit dem wahrgenommenen und mitempfundenen Leid und den negativen Gefühlen anderer Personen umzugehen und fühlen sich dadurch überfordert (höherer empathischer Distress). Mögliche Moderatoren, die den Zusammenhang zwischen affektiver Empathie und Depression beeinflussen, könnten Defizite in der Emotionsregulation, Alexithymie und übersteigerte Schuld- und Schamgefühle sein (Banzhaf et al., 2018; Gambin & Sharp, 2018; Powell, 2018). Demnach konnte das Modell von McCullough (2003) nur in Teilen gestützt werden, einzelne Ergebnisse sprechen jedoch für eine Ergänzung dieses Modells. So stützt die hohe Ausprägung interpersoneller Probleme und des empathischen Distress bei Patient*innen mit PDD in den vorliegenden Studien das CBASP-Modell. Die hohe Ausprägung in der affektiven Empathie und die guten Fertigkeiten in der affektiven ToM sprechen jedoch dafür, dass Patient*innen mit PDD zunächst schon mit ihrer Umwelt in Verbindung stehen, Gefühle anderer erkennen können und intensiv mit anderen Personen mitfühlen. Sie scheinen dann jedoch von diesen Situationen überfordert zu sein (hoher empathischer Distress) und sich womöglich verstärkt zurückzuziehen (passiv/vermeidendes Verhalten). Dieses Verhaltensmuster könnte seine Wurzeln in Misshandlungserfahrungen in der Kindheit haben, und sich unter anderem durch Grundannahmen („Prägungen“ nach CBASP) bis ins Erwachsenenalter fortführen. Wie zuvor beschrieben, könnten verschiedene Mechanismen zu dieser Überforderung mit den Gefühlen anderer führen: fehlende interpersonelle Kompetenz (z.B. fehlende Kompetenz, andere zu trösten oder Hilfe anzubieten oder sich abzugrenzen), Emotionsregulationsdefizite (z.B. Überforderung mit eigenen Gefühlen nach Gefühlsansteckung) oder übersteigerte Schuldgefühle (z.B. durch übermäßige Verantwortungsgefühle für das Leid anderer). Hieraus könnten wiederum unterschiedlich Behandlungsansätze abgeleitet werden, um Überforderung langfristig zu reduzieren (siehe auch Abschnitt 5.4).

5.2 Limitationen der vorliegenden Arbeit

Bei der Interpretation der zuvor beschriebenen Studienergebnisse sind einige Limitationen zu berücksichtigen. Zunächst ist die retrospektive Erfassung von Kindesmisshandlung im Selbstbericht bei allen vier Studien zu nennen. Eine aktuelle Meta-Analyse zeigt eine geringe Übereinstimmung zwischen prospektiver und retrospektiver Erfassung von Kindesmisshandlung und schließt, dass diese nicht austauschbar eingesetzt werden können (Baldwin, Reuben, Newbury, & Danese, 2019). Als Schwäche der retrospektiven Erfassung werden insbesondere eine Anfälligkeit für Erinnerungs-Verzerrungen sowie eine Abhängigkeit von der subjektiven Wahrnehmung und Interpretation der Ereignisse diskutiert (Danese, 2020). Dies könnte insbesondere für die Skala der emotionalen Vernachlässigung zutreffen, da diese weniger konkrete Verhaltensanker einsetzt, sondern eher von einer subjektiven Einschätzung und Interpretation der Beziehungen abhängt (z.B. „Als ich aufwuchs hatte ich das Gefühl, geliebt zu werden.“ (R)). Hierdurch könnte die Gefahr bestehen, dass durch einen Einfluss der aktuellen Stimmung auf das

Antwortverhalten eine Überschätzung der Zusammenhänge mit Outcome-Variablen entsteht. Gegen die Annahme eines starken Effekts der aktuellen Stimmung auf retrospektive Berichte der Kindesmisshandlung spricht jedoch eine aktuelle Studie mit längsschnittlichem *cross-lagged panel design*, in der sich kein Zusammenhang zwischen Veränderungen in der Depressionsschwere und selbstberichteter Kindesmisshandlung zeigte (Frampton, Poole, Dobson, & Pusch, 2018). Für den Einsatz einer retrospektiven Erfassung spricht hingegen, dass durch den Selbstbericht eine höhere Sensitivität bei der Entdeckung von Kindesmisshandlung erzielt werden kann. Bei der Erfassung über offizielle Register (am häufigsten verwendete Methode der prospektiven Studien) besteht dagegen die Gefahr, dass viele Misshandlungsfälle nicht erfasst sind, sondern nur ‚die Spitze des Eisbergs' mit den am schwersten Betroffenen (Stoltenborgh et al., 2015). Zudem ermöglicht eine Erhebung im Selbstbericht eine ökonomische Erfassung aller Formen der Misshandlung in größeren Stichproben und durch die häufige Verwendung des gut validierten CTQ kann eine Vergleichbarkeit zwischen verschiedene Studien erzielt werden. Dennoch sollte bei der Interpretation der vorliegenden Ergebnisse immer beachtet werden, dass durch retrospektive und prospektive Erfassung der Kindesmisshandlung nicht dieselben Proband*innen als Betroffenen identifiziert werden.

Des Weiteren sollte beachtet werden, dass es sich bei den Studien I – III um querschnittliche Designs handelt. Dies ist zum einen problematisch, da es Hinweise darauf gibt, dass es bei Mediationsanalyse mit querschnittlichen Daten zu Verzerrungen der Ergebnisse kommen kann (Maxwell & Cole, 2007). Zudem erlaubt ein querschnittliches Design keine Aussagen über die Kausalität der Zusammenhänge. Da bei Kindesmisshandlung von weiter zurückliegenden Erfahrungen berichtet wird, kann auf eine zeitliche Vorgeordnetheit dieses Konstruktes vor die Mediator- und Outcome-Variablen geschlossen werden. Dies ist jedoch meist nicht der Fall bei den untersuchten Mediator- und Outcome-Variablen. So wird z.B. in Studie III theoretisch angenommen, dass stärkere interpersonelle Probleme und empathischer Distress zu einer stärkeren Depressionsschwere beitragen. Die umgekehrte Richtung – dass die depressive Symptomatik zu stärkeren interpersonellen Problemen und empathischem Distress beiträgt – ist jedoch auch theoretisch begründbar und kann mit unserem Studien Design nicht ausgeschlossen werden. In Studie IV haben wir dagegen zwei Messzeitpunkte (Prä/Post) einbeziehen können, jedoch können wir auch in dieser Studie bei der Interpretation der Zusammenhänge der Veränderungswerte keine Aussagen über die Kausalität treffen, da auch in dieser Studie eine umgekehrte Wirkrichtung nicht ausgeschlossen werden kann (eine Veränderung in der Depressionsschwere könnte auch umgekehrt zu einer Besserung von Emotionsregulation/ Selbstmitgefühl/empathischem Distress/interpersonellen Problemen führen). Daher sollten die Ergebnisse möglichst in zukünftigen Studien mit längsschnittlichem Design repliziert werden (z.B. einem *cross-lagged panel design*). Zudem erscheint es sinnvoll, in zukünftigen Therapiestudien die Mechanismus- und Outcome-Variablen mehrfach im Verlauf zu erfassen (Kazdin, 2007), sodass auch

dynamic network Ansätze verfolgt werden können, die eine exaktere Analyse von Veränderungsprozessen erlauben (Hofmann, Curtiss, & Hayes, 2020).

Weitere Limitationen der Studie I bestehen zum einen in den vergleichsweise kleineren Stichproben der Patient*innen mit Schizophrenie und Bipolarer Störung (im Vergleich zu den großen MDD und HC Stichproben) und darin, dass nur ein Teil dieser Proband*innen sich zum Messzeitpunkt in einer akuten Phase befand, da auch remittierte und teilremittierte Proband*innen für das FOR 2107 Projekt rekrutiert wurden. Aufgrund der niedrigeren Power sollten daher die Zusammenhänge zwischen Kindesmisshandlung und aktuellen manischen und psychotischen Symptomen mit Vorsicht interpretiert werden. Zudem erfolgte die Kategorisierung der PDD Gruppe in dieser Studie nur anhand der SKID-Interview Fragen, anstelle eines ausführlicheren Verlaufsinterviews, sodass die Einteilung als weniger reliable einzuschätzen ist. In Studie III haben wir daher ein ausführlicheres Life-Chart-Interview des Symptomverlaufs über die letzten Jahre entwickelt und eingesetzt, um die Kategorisierung in PDD und ED noch zuverlässiger durchführen zu können.

Eine weitere Limitation der Studie III liegt in der Erfassung von Empathie und interpersonellen Problemen ausschließlich im Selbstbericht, sodass Verzerrungen z.B. durch soziale Erwünschtheit möglich sind. Als mögliches ergänzendes Fremdbeurteilungsinstrument könnte in zukünftigen Studien das *Impact Message Inventory* eingesetzt werden (Kiesler & Schmidt, 2006). Es wird zudem diskutiert, dass sozial-kognitive Defizite bei Patient*innen möglicherweise nicht mit den typischen Labortests nachzuweisen sind, da sie nur auftreten, wenn die Betroffene selber aktiv in die Situation involviert ist (Wilbertz, Brakemeier, Zobel, Härter, & Schramm, 2010). In einer Pilotstudie haben wir daher damit begonnen, eine standardisierte Verhaltensprobe zu entwickeln und zu validieren, in der die Proband*innen selbst aktiv involviert sind (Franke, 2018). Bezüglich der ToM Erfassung ist zudem zu beachten, dass der verwendete Test (RMET; Baron-Cohen et al., 2001) nur die affektive ToM erfasst und in unseren Studien nicht die kognitive ToM berücksichtigt wurde. Es wird zudem beim RMET eine geringe ökologische Validität kritisiert und es umstritten, ob er passender als Emotionserkennungstest bezeichnet werden sollte (Oakley, Brewer, Bird, & Catmur, 2016; Preißler, Dziobek, Ritter, Heekeren, & Roepke, 2010). Andererseits wurde der RMET in bisherigen Studien zur Untersuchung sozialer Kognition in klinischen Studien besonders häufig eingesetzt, was eine höhere Vergleichbarkeit mit anderen Studien erlaubt.

Bei Studie III ist zudem zu beachten, dass die depressiven Stichproben heterogen bzgl. der Einnahme von Antidepressiva waren. Frühere Studien zeigen, dass Antidepressiva Einnahmen den negativen Emotionserkennungs-Bias (Harmer et al., 2009) sowie eine Gefühlsansteckung (Rütgen et al., 2019) verringern können. Die Wirkung der Antidepressiva könnte somit zu einer Unterschätzung der Unterschiede zwischen Patient*innen und Gesunden hinsichtlich des Emotionserkennungs-Bias und des

empathischen Distress geführt haben. Bei Hinzunahme der Antidepressiva-Einnahme als Kontrollvariable veränderten sich die Ergebnisse jedoch nicht bedeutend.

Als Limitation der Studie IV sind zudem das Fehlen einer Kontrollgruppe zu nennen. Dadurch ist es nicht möglich, Veränderungen in der Depression oder den Mediator-Variablen direkt auf spezifische Behandlungselemente zurückzuführen. Schließlich ist die vergleichsweise geringe Stichprobengröße dieser Studie zu beachten.

Die Fragestellungen der vorliegenden Dissertations-Studien sind limitiert auf die Untersuchung des umweltbedingten Risikofaktors der Kindesmisshandlung. Die Ätiologie der Depression ist jedoch geprägt durch komplexe Interaktionen genetischer und umweltbedingter Faktoren (Uher & Zwicker, 2017). Zudem wurden in den Studien der vorliegenden Dissertations-Studien keine neurobiologischen Korrelate der untersuchten Mechanismen berücksichtigt. Weitere Studien der FOR 2107 Forschergruppe haben zum Ziel, diesen Fragestellungen nachzugehen (Kircher et al., 2018; z.B. Schneider-Hassloff et al., 2016).

5.3 Perspektiven für weitere Forschung

In den vorliegenden Studien wurden zunächst anhand querschnittlicher Daten mögliche Variablen identifiziert, die an den Mechanismen der Auswirkung von Kindesmisshandlungsformen auf die Entstehung und Aufrechterhaltung von Depressionen beteiligt sein könnten. Aktuelle Befunde weisen jedoch darauf hin, dass die Zusammenhänge deutlich komplexer sind als in unserem vereinfachten Modell (Abschnitt 3.2 Abbildung 5) angenommen. So deuten unsere Ergebnisse und weitere aktuelle Studien (z.B. Diedrich et al., 2017; Powell, 2018) darauf hin, dass sich die Mechanismus-Variablen auch untereinander beeinflussen (z.B. im Sinne sequenzieller Mediationen) und wahrscheinlich Moderator-variablen die Effekte beeinflussen (z.B. im Sinne von *buffering factors*). Ein komplexeres theoretisches Modell ist in Abbildung 6 beispielhaft dargestellt und könnte in weiteren Studien getestet und weiter ausdifferenziert werden. Um sequenzielle Mechanismen und Kausalität zu testen, sind längsschnittliche Studien, die Proband*innen von der Kindheit bis ins Erwachsenenalter zu mehreren Messzeitpunkten untersuchen, die Methode der Wahl. Alternativ würden aber auch längsschnittlichen Untersuchungen bei erwachsenen Patient*innen mehr Rückschlüsse auf die Kausalität der Zusammenhänge erlauben.

Neben der oben genannten notwendigen längsschnittlichen Testung von Zusammenhängen, stellen sich aus unseren Befunden weitere Forschungsfragen und Implikationen für zukünftige Studien (angeordnet nach dem Modell in Abbildung 6):

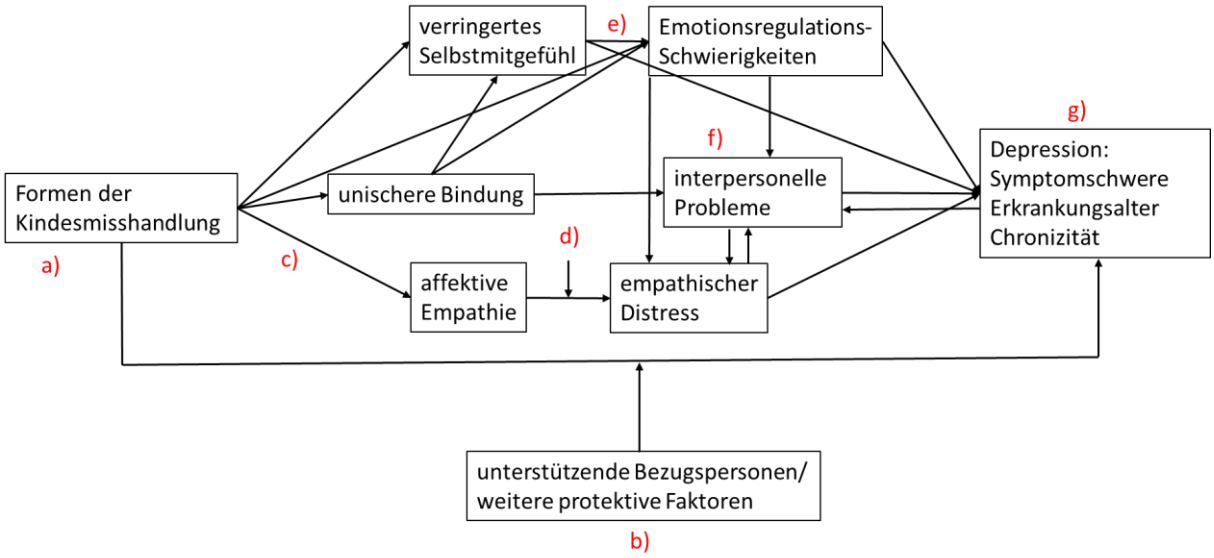

Abbildung 6. Hypothetisches Modell möglicher komplexer Zusammenhänge der untersuchten Mechanismen und zusätzlicher Moderator-Variablen. Die Buchstaben beziehen sich auf weitere offene Fragestellungen, die im Folgenden erläutert werden.

a) Die Befunde dieser Dissertation weisen darauf hin, dass differenzielle Zusammenhänge zwischen spezifischen Misshandlungsformen und spezifischen Outcomes bestehen, sowie hohe Interkorrelationen zwischen den Misshandlungsformen. In zukünftiger Forschung sollten daher die verschiedenen Formen – wenn möglich – gemeinsam berücksichtigt werden, um spezifische Effekte zu identifizieren.

   Zukünftige Forschung sollte neben der Form der Misshandlung auch weitere Charakteristika berücksichtigen, wie z.B. Zeitpunkt und Dauer der Misshandlung, die Nähe im familiären Netzwerk der misshandelnden Personen (z.B. Eltern vs. Bekannte) oder auch Mobbingerfahrungen durch Gleichaltrige.

b) Was sind protektive Faktoren, die den Effekt von Kindesmisshandlung auf Depression (und andere Psychopathologie) reduzieren können (*buffering factors*)? Erste Studien weisen hier auf die besondere Rolle anderer unterstützender Bezugspersonen (z.B. Familienangehörige oder Gleichaltrige) hin (Collishaw et al., 2007; Jaffee, Takizawa, & Arseneault, 2017).

   Daraus resultiert zunächst die Frage nach einer validen Erfassung, ob mindestens eine unterstützende und warme Bezugsperson in Kindheit und Jugend anwesend war. Wir haben daher mit der Entwicklung einer kurzen Skala zur Erfassung dieses potenziellen *buffering factors* begonnen.

c) Bezüglich des Effekts von Kindesmisshandlung auf die affektive Empathie zeigen sich die Befunde bisher inkonsistent. Während in der vorliegenden Arbeit ein positiven Zusammenhang gefunden wurde, berichten andere Studien über einen negativen Zusammenhang (Locher, Barenblatt, Fourie, Stein, & Gobodo-Madikizela, 2014). Es stellt sich die Frage, ob bestimmte frühe Erfahrungen eher zu

einer Sensitivierung für das Leid anderer führen, während andere eher zu einer geringeren affektiven Empathie führen. Eine Hypothese wäre, dass Personen, die früh viel Verantwortung übernehmen mussten (z.B. im Sinne einer Parentifizierung) oder deren Eltern sehr wechselhaft und unberechenbar in ihrem Verhalten waren, ein sehr ausgeprägtes Gespür für die affektiven Zustände anderer Personen entwickeln, währen bei Personen, die einem sehr geringen Input und anhaltender Vernachlässigung ausgesetzt waren, dies eher unterentwickelt sein könnte. Zukünftige Forschung sollte dies differenzierter untersuchen.

d) Was führt dazu, dass depressive Patient*innen erhöhte affektive Empathie berichten, während in gesunden Stichproben affektive Empathie mit positiven Outcomes verknüpft ist? Es wäre eine Untersuchung möglicher Moderatorvariablen (geringe Emotionsregulation, übersteigertes Verantwortungsgefühl und damit verbundene Scham und Schuldgefühle) wichtig und sinnvoll. Zudem sollte zukünftige Forschung untersuchen, ob der Zusammenhang zwischen affektiver Empathie und Depressivität geringer wird, wenn in der Therapie gezielt Selbstmitgefühl und Emotionsregulation gefördert wird (z.B. mit Therapieelementen der CFT).
e) Welche kausalen Zusammenhänge bestehen zwischen Selbstmitgefühl und Emotionsregulation? In der vorliegenden Arbeit konnte ein indirekter Effekt von geringem Selbstmitgefühl über Emotionsregulations-Schwierigkeiten auf die Depressionsschwere gezeigt werden. Dieser Befund sollte in einem längsschnittlichen Design repliziert werden. Zudem wäre es relevant zu prüfen, ob Ansätze zur Steigerung von Selbstmitgefühl auch eine positive Wirkung auf Emotionsregulations-Fertigkeiten haben.
f) Wie können wir soziale Fertigkeiten bei Patient*innen mit PDD am effektivsten fördern? Es wäre relevant zu untersuchen, ob eine Kombination aus CBASP Einzel- und Gruppentherapie genauso effektiv oder effektiver in der Reduktion interpersoneller Probleme ist als eine reine Einzeltherapie. Auch andere Ansätze zur Förderung interpersoneller Kompetenzen, wie z.B. das Kiesler-Kreis Training (Guhn, Köhler, & Brakemeier, 2019) oder das Gruppentraining sozialer Kompetenz (Hinsch & Pfingsten, 2007) könnten in dieser Stichprobe evaluiert und die Wirksamkeit verschiedener Ansätze verglichen werden.
g) Um differenzierter betrachten zu können, ob verschiedene Therapieansätze für die Behandlung der Subgruppe der Patient*innen mit Misshandlungserfahrungen geeignet sind, sollten Erfahrungen von Kindesmisshandlung in zukünftigen Behandlungsstudien und in der Qualitätssicherung von ambulanten und stationären Therapien routinemäßig miterfasst und als Moderator bei Auswertungen berücksichtigt werden.

   Bisher gibt es zudem nur wenige Studien, die CBASP mit anderen spezifischen psychotherapeutischen Ansätzen zur Depressionsbehandlung in ihrer Wirksamkeit bei der Behandlung von Patient*innen mit PDD vergleichen (Rief, Bleichhardt, Dannehl, Euteneuer, &

Wambach, 2018; Schramm et al., 2011). Daher läuft derzeit eine Studie unserer Arbeitsgruppe an, die CBASP und den *Behavioral Activation* Ansatz in der Behandlung von Patient*innen mit PDD vergleicht und in der Kindesmisshandlung als potenzieller Moderator berücksichtigt wird.

Zudem stellt sich die Frage, ob die Wirksamkeit der CBASP-Therapie bei der Behandlung von Patient*innen mit PDD noch gesteigert werden kann, indem zusätzlich Elemente zur Förderung von Selbstmitgefühl und Emotionsregulationsfertigkeit (z.B. Elemente aus der CFT) integriert werden, was durch Komponenten Studien untersucht werden sollte (Cuijpers, Cristea, Karyotaki, Reijnders, & Hollon, 2019).

5.4 Implikationen für die klinische Praxis

Ansatzpunkte für Interventionen bestehen an unterschiedlichen Stellen der untersuchten Zusammenhänge (siehe Abbildung 7).

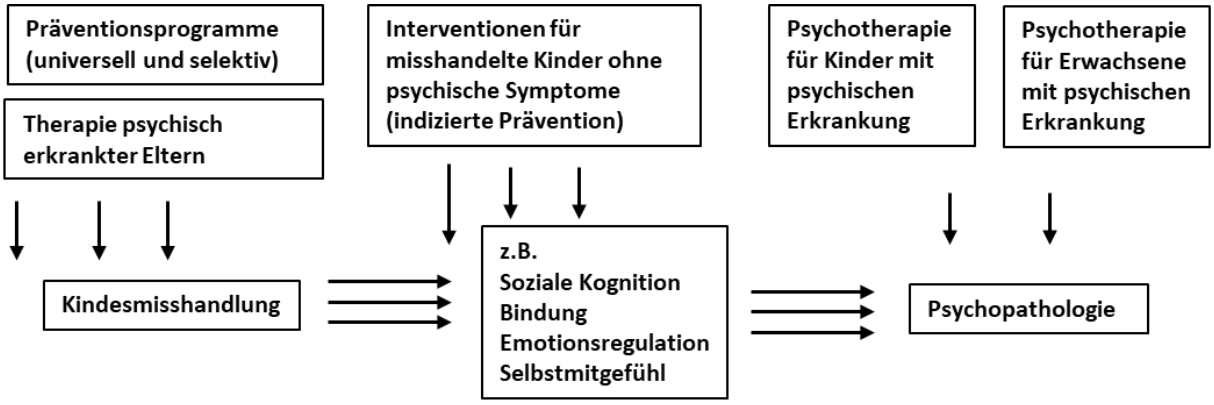

Abbildung 7. Ansatzpunkte für Prävention und Interventionen

In den vorliegenden Studien zeigte sich – konsistent mit früheren Arbeiten – ein deutlicher Zusammenhang zwischen frühen Misshandlungserfahrungen und der Entstehung und Aufrechterhaltung von Psychopathologie noch Jahrzehnte später im Erwachsenenalter. Diese Ergebnisse unterstreichen noch einmal eindeutig die enorme Bedeutung der frühzeitigen Prävention von Kindesmisshandlung, um Leid über die gesamte Lebenspanne zu verhindern. Die besten Belege bestehen in diesem Bereich bisher für Präventionsprogramme mit Hausbesuchen von Familien mit Säuglingen und Kleinkindern (z.B. *Nurse-Family Partnership;* Olds, 2006) sowie für Programme zur Förderung der Elternkompetenz (z.B. *Triple P-Positive Parenting Program;* Sanders, 1999; Sanders, Kirby, Tellegen, & Day, 2014). Diese kombinieren häufig einen universellen Ansatz, der an alle Eltern gerichtet ist, mit einem selektiven Ansatz, indem das Programm bei Vorliegen von Risikofaktoren intensiviert wird (Hardcastle, Bellis, Hughes, & Sethi, 2015). Aber auch Projekte, die eine therapeutische Behandlung psychisch erkrankte Eltern fokussieren, stellen einen wichtigen Ansatzpunkt dar, um Risikofaktoren für Kindesmisshandlung und die transgenerationale Transmission psychischer Erkrankungen zu reduzieren (z.B. *Compare;* Christiansen et al., 2019). Bei Vorliegen einer akuten Kindeswohlgefährdung steht der

Schutz des Kindes im Vordergrund und Therapeuten und Ärzte müssen nach einer gründlichen Einschätzung der Situation bei akuter Gefährdung mit der Jugendhilfe kooperieren (Kinderschutzleitlinienbüro, 2019). Eine Förderung von Kindern, die Misshandlung ausgesetzt waren, möglichst auch in Kooperation mit betreuenden Personen (indizierte/ tertiäre Prävention) ist von großer Bedeutung, ebenso wie die psychotherapeutische Behandlung durch Kinder- und Jugendtherapeuten, wenn psychische Symptome bereits in der Kindheit auftreten. Unsere Ergebnisse weisen darauf hin, dass eine gezielte Förderung der Bereiche Bindung, interpersonelle Kompetenzen, Selbstmitgefühl und Emotionsregulation bei misshandelten Kindern möglicherweise der Entstehung depressiver Symptome entgegenwirken könnte.

Auch für die Behandlung psychisch erkrankter Erwachsener haben die Ergebnisse dieser Arbeit Implikationen. Sie deuten darauf hin, dass sich Patient*innen, die Kindesmisshandlung ausgesetzt waren, von anderen Patient*innen unterscheiden und evtl. andere Mechanismus Variablen der Entstehung und Aufrechterhaltung der Pathologie zugrunde liegen. Therapieansätze sollten daher auch an die spezifischen Bedürfnisse und Probleme dieser Patient*innen angepasst werden. Zunächst erscheint es daher sinnvoll, sowohl Erfahrungen von Kindesmisshandlung als auch die untersuchten psychologischen Mechanismus-Variablen routinemäßig zu Beginn einer Therapie zu erfassen. Einige Therapieansätze – insbesondere der 3. Welle der Verhaltenstherapie – fokussieren bereits gezielt auf die untersuchten Mechanismen. So werden beispielsweise In der CBASP-Therapie (McCullough Jr., 2003) zu Beginn frühe Beziehungserfahrungen und daraus resultierte Prägungen thematisiert und anschließend damit verbundene aktuelle interpersonelle Probleme bearbeitet. Auch der Fokus von CBASP durch Situationsanalysen und Rollenspielen schwierige interpersonelle Situationen aktiv zu üben, wird von unseren Ergebnissen gestützt, da wir deutliche Zusammenhänge von Kindesmisshandlung mit interpersonalen Problemen und empathischem Distress zeigen konnten. Das unsere Befunde nicht auf einen Zusammenhang von Kindesmisshandlung mit Defiziten in der Emotionserkennung in Gesichtern oder der affektiven ToM bei depressiven Patient*innen hinweisen, spricht dagegen gegen den Nutzen eines routinemäßigen Einsatzes von abstrakteren Trainings zu Förderung der affektiven ToM oder der Emotionserkennung in Gesichtern bei Betroffenen. Die deutlichen Zusammenhänge von Kindesmisshandlung mit einem niedrigen Selbstmitgefühl und einer geringeren Emotionsregulations-kompetenz untermauert zudem die Annahmen der CFT (Gilbert, 2012). Es erscheint daher bei Patient*innen mit PDD und Erfahrungen von Kindesmisshandlung sinnvoll, sowohl eher intrapsychische Faktoren (starke Selbstkritik, Defizite der Emotionsregulation, geringes Selbstmitgefühl) als auch interpersonelle Faktoren (interpersonelles Verhalten, Empathie) zu adressieren und in Therapien zu bearbeiten. Die Mediation über einen unsicheren Bindungsstil in unseren Befunden weist zudem darauf hin, dass neue revidierende und sichere Beziehungserfahrungen für Patient*innen mit PDD und Kindesmisshandlungs-Erfahrungen besonders wichtig seien könnten. Daraus lässt sich ableiten, dass

auch auf der therapeutischen Beziehung zu diesen Patient*innen ein besonderer Fokus liegen sollte (evtl. in einer Form, dass die Therapeutin zu einer *secure base* für die Patientin werden könnte). Einige therapeutische Ansätze für chronische psychische Störungen – wie die Schematherapie (Young, Klosko, & Weishaar, 2003), CBASP oder CFT – fokussieren explizit auf den Aufbau einer sicheren Bindung, indem die Therapeutin eine besondere therapeutische Rolle einnimmt. Zum Beispiel wird diese Rolle in der Schematherapie als *limited reparenting* und in CBASP als *disciplined personal involvement* bezeichnet, wozu z.B. Selbstöffnung, Wärme und Fürsorge, aber auch empathische Konfrontation und das Setzen von Grenzen gehören, um langfristig neue positive Beziehungserfahrungen zu ermöglichen. Zudem ist zu beachten, dass ein Zusammenhang zwischen Erfahrungen von Kindesmisshandlung und einer Reviktimisierung im Erwachsenenalter besteht, z.B. in Form von Misshandlung in der Partnerschaft (Li, Zhao, & Yu, 2019; Widom, Czaja, & Dutton, 2008). Aktuelle Beziehungen der Patient*innen sollten daher in der Therapie von Patient*innen mit Misshandlungserfahrungen ausführlich exploriert werden, auch im Zusammenhang mit den in den vorliegenden Studien untersuchten passiv/submissiven interpersonellen Verhaltensweisen. Patient*innen berichten häufig über Veränderungen in sozialen Beziehungen und der Partnerschaft als Folge von Psychotherapie (z.B. nach einer CBASP-Therapie durch ein aktiveres und weniger submissives Auftreten; Brakemeier et al., 2018) und diese möglichen Auswirkungen sollten im Rahmen einer Therapie möglichst auch transparent besprochen werden.

5.5. Fazit

Insgesamt unterstreicht die vorliegende Dissertation die enormen und sehr langfristigen Folgen von Kindesmisshandlung. Die Studien verdeutlichen, dass auch emotionaler Missbrauch und emotionale Vernachlässigung – Misshandlungsformen, die in der Praxis häufig übersehen und in der Forschung bisher weniger untersucht wurden – gravierende Auswirkungen auf die psychische Gesundheit und verschiedene psychische Fertigkeiten haben können. Patient*innen mit psychischen Störungen und insbesondere Patient*innen mit einer PDD haben sehr häufig Misshandlung in der Kindheit erleben müssen. Interpersonelle Kompetenzen, Selbstmitgefühl, und Emotionsregulation scheinen Fertigkeiten zu sein, die bei Patient*innen mit PDD und Erfahrungen von Kindesmisshandlung besonders in einer Psychotherapie gefördert werden sollten, um eine Verbesserung der Symptomatik zu erzielen.

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Anhang

Anhang A1: Studie 1

Childhood maltreatment and adult mental disorders – the prevalence of different types of maltreatment and associations with age of onset and severity of symptoms

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ABSTRACT

Childhood maltreatment (CM) is a risk factor for numerous mental disorders. However, the specificity of CM types in mental disorders is still being discussed. The present study examined the prevalence of five CM types in patients with schizophrenia/schizoaffective disorder (SZ; n = 107), bipolar disorder (BD; n = 103), depression (MDD; n = 604; with the two subgroups Persistent Depressive Disorder (PDD) and non-chronic MDD), and in healthy controls (HC; n = 715). Additionally, associations between CM types, symptom severity, and age of onset were investigated. The prevalence of all CM types was higher in the patient groups compared to HC. Emotional neglect, emotional abuse, and physical neglect were reported most frequently in all groups. Notably, patients with PDD reported more CM of all types than patients with non-chronic MDD. The severity of depression was associated with emotional abuse and neglect; anxiety with emotional abuse, emotional neglect, and sexual abuse; positive SZ symptoms with physical neglect; negative symptoms with emotional and physical neglect; and mania with sexual abuse and physical neglect. CM was associated with a younger age of onset in MDD and BD. The high prevalence of CM in patients with severe mental disorders highlights the importance of considering this issue in the treatment of such patients.

1. Introduction

Childhood maltreatment (CM) is associated with an increased risk for the onset of numerous mental disorders in cohort studies (Green et al., 2010; Kessler et al., 2010) and with a very high burden of disease (Cuijpers et al., 2011). Several studies have indicated that CM also predicts an unfavorable course of these disorders (Agnew-Blais and Danese, 2016; Nelson et al., 2017; Trotta et al., 2015).

Five types of CM are generally distinguished: emotional abuse, sexual abuse, physical abuse, and emotional as well as physical neglect (Butchart et al., 2006). While earlier studies focused mainly on physical and sexual abuse, today the focus is also on the effects of emotional abuse and neglect on different mental disorders.

For major depressive disorder (MDD), studies indicate that individuals with a history of CM are significantly more likely to develop MDD in adulthood, with emotional abuse and neglect being most strongly associated with the onset of MDD and with depressive symptom severity (Humphreys et al., 2020; Mandelli et al., 2015; Nelson et al., 2017). A recent meta-analysis suggests that approximately 46% of individuals with depression reported any CM, with emotional neglect being most frequent, followed by emotional abuse and physical neglect with roughly equal prevalence (Nelson et al., 2017). CM is also associated with an earlier onset, a chronic course, and treatment resistance for depression (Hovens et al., 2012; Nelson et al., 2017). CM is expected to play a particularly strong role in the development of persistent depressive disorders (PDD). McCullough – the founder of the Cognitive Behavioral Analysis System of Psychotherapy (CBASP) – based his treatment approach on the assumption that most chronically

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depressed patients have experienced CM, leading to interpersonal avoidance (McCullough Jr, 2003). However, studies comparing the prevalence of CM in chronic and episodic depression are rare and often inconsistent (Brakemeier et al., 2018; Sung et al., 2012; Van Randenborgh et al., 2012).

In studies of CM in bipolar disorder (BD), approximately half of patients report any form of severe CM (Garno et al., 2005). A meta-analysis reported that CM predicts a higher severity of symptoms, with greater mania, depression, and psychosis severity, as well as increased comorbidities (Agnew-Blais and Danese, 2016). Moreover, an association between CM and an unfavorable course of BD has been reported, with an earlier age of onset, a higher risk of rapid cycling, a greater number of manic and depressive episodes and a higher risk of suicide attempts (Agnew-Blais and Danese, 2016; Daruy-Filho et al., 2011). Few studies have differentiated between the effects of different CM types in patients with BD and in most of those studies, emotional maltreatment was not considered. However, preliminary evidence indicates that emotional abuse and neglect are the most frequently reported types of CM in patients with BD and that the association between emotional abuse and the development of a BD is highest (Etain et al., 2008; Palmier-Claus et al., 2016). In a study by Larsson et al. (2013), only emotional abuse and neglect were associated with an earlier onset of BD. A further study by Etain et al. (2013) indicates that emotional and sexual abuse are the strongest predictors of a younger age of onset and history of suicide attempts.

Studies investigating relationships between schizophrenia (SZ) and CM suggest a medium to large effect of CM in individuals with SZ when compared to healthy controls (Matheson et al., 2013; Varese et al., 2012). However, the results suggest a lack of specificity of CM as a risk factor for SZ, when compared to other severe mental disorders, such as depression (Matheson et al., 2013; Van Dam et al., 2015). With respect to associations between CM and an unfavorable course of symptoms in SZ, the evidence is inconsistent (Trotta et al., 2015; Van Dam et al., 2015). Likewise, the role of specific CM types in SZ is still being discussed. A meta-analysis by Varese et al. (2012) suggests that all types of CM are associated with an increased risk of psychosis, whereby there is no evidence that a specific CM type is a stronger predictor of psychosis than any other. In contrast, a recent study reports that in particular emotional abuse and neglect (a combined measure of physical and emotional neglect) are associated with psychotic experiences and disorders (Abajobir et al., 2017). Schalinski et al. (2017) find that severity of neglect (a combined measure of physical and emotional) at age 10 is the strongest determinant for more severe positive symptoms, while CM was not associated with negative symptoms.

The question of whether there are specific associations between individual types of CM and specific mental disorders and symptom clusters, or whether CM represents a general risk factor for mental disorders is still under debate. Two prospective cohort studies support CM as a general and non-specific risk factor for a range of mental disorders (Green et al., 2010; Kessler et al., 2010). Some recent theories and first empirical findings indicate specific effects of particular types of maltreatment. Sheridan and McLaughlin (2014) suggest that the dimensions *threat* (e.g. physical abuse, sexual abuse) and *deprivation* (e.g. neglect) have distinct effects on neural development and cognition. McLaughlin et al. (2020) propose that exposure to threat in childhood leads to internalizing and externalizing psychopathology via transdiagnostic mechanisms as e.g. poorer emotion regulation and enhanced threat detection. Heightened threat processing, in turn, is a characteristic feature of fear disorders and post-traumatic stress disorder (Vallati et al., 2020). According to this theory, individuals exposed to deprivation are more likely to show deficits in cognitive function and in language production and comprehension which might be related to developmental problems as e.g. attention-deficit/hyperactivity disorder (McLaughlin et al., 2014).

A study using a nationally representative survey in the US has examined the associations between particular types of CM and dimensions of psychopathology (Keyes et al., 2012). They found that emotional abuse was associated with the internalizing dimension (e.g. symptoms of anxiety, depression, PTSD) and sexual abuse with both internalizing and the externalizing dimensions (e.g. alcohol and cannabis misuse/dependence, antisocial personality disorder) independent of gender. Physical abuse was associated with externalizing symptoms only in men, but with internalizing symptoms in women. Physical and emotional neglect were neither correlated with the externalizing nor the internalizing dimension (Keyes et al., 2012).

1.1. Aims of the study

So far, most studies have focused on associations between one specific type of CM and one specific mental disorder. This is problematic since the five different types of CM often co-occur and such designs do not allow for identification of the differential associations between CM types and mental disorders or psychopathology. In order to address this research gap, we have investigated the five types of maltreatment in a large sample with different psychiatric diagnoses and healthy controls. Since - in contrast to many other studies – in this sample, all patients filled out all disorder-specific questionnaires, associations can be investigated across disorders.

The first aim of the study was to investigate the prevalence of CM types in different psychiatric diagnoses. We assumed a higher prevalence of all CM types in the patient groups when compared to the healthy control group. As for patients with persistent depressive disorder, we hypothesized a higher prevalence of reported CM, when compared to patients with non-chronic major depressive disorder. In relation to all other comparisons, we followed an explorative approach due to inconsistent findings.

The second aim was, to investigate associations between the five CM types and current symptom severity in the combined sample. The third aim was, to investigate associations between CM types and age of onset in major depressive disorder, bipolar disorder, and schizophrenia. We hypothesized that CM, in general, predicts higher levels of depression, mania, and positive and negative symptoms of schizophrenia. Moreover, we hypothesized that CM also predicts a younger age of onset in patients with major depressive disorder, bipolar disorder, and schizophrenia. Concerning the five subtypes, we follow an explorative approach due to inconsistent previous findings.

2. Methods

2.1. Sample

Data were drawn from the FOR 2107 research project, which is an ongoing multicentre study examining genetic and environmental risk factors and their interaction in the etiology, onset, and course of different mental disorders (http://for2107.de). A detailed study description has been previously published (Kircher et al., 2018). Participants were recruited via public advertisements and from inpatient services at the Universities of Marburg and Münster, Germany. Inclusion criteria for all participants were a verbal IQ > 80, Western European ancestry, magnetic resonance imaging compatibility, and no history of severe neurological or medical disorders. Additional inclusion criteria for the patient groups included a current, partially remitted, or remitted diagnosis of schizophrenia, schizoaffective disorder, BD, or MDD (assessed by Structured Clinical Interviews for DSM-IV (SCID-I) (Wittchen et al., 1997) by trained psychologists). Classification into patient groups was based on the main diagnosis. Patients with comorbid disorders (e.g. substance abuse, anxiety disorders) were not excluded, as comorbidity is a typical characteristic of patients with the mental disorders studied, especially in patients with high symptom severity. For the HC group, additional exclusion criteria included current or former mental disorders (assessed by SCID-I (Wittchen et al., 1997)) or current psychotropic medication. Due to other research

questions of the FOR 2107 research project, healthy participants with first-degree relatives with mental disorders were explicitly recruited, in addition to healthy participants without genetic risks. In addition, HC participants with exposure to CM were explicitly recruited.

We analyzed all data from the project until January 2017 (N = 1579). Due to missing data in the CTQ, 50 participants were excluded, leading to the following sample (N = 1529): 107 patients with current or remitted schizophrenia or schizoaffective disorder (SZ), 103 patients with current or remitted BD, 604 patients with current or remitted MDD, and 715 healthy controls (never met DSM-IV criteria for a mental disorder). In relation to the MDD group, two subgroups were distinguished. The acute non-chronic MDD group (n = 195) included clinically acute patients whose current episodes lasted less than two years. The acute PDD group (n = 65) included clinically acute patients whose current episodes lasted more than two years.

All participants provided written informed consent. The authors assert that all procedures contributing to this work complied with the ethical standards of the relevant national and institutional committees on human experimentation, and with the Helsinki Declaration of 1975, as revised in 2008. The FOR2107 cohort project (WP1) was approved by the Ethics Committees of the Medical Faculties, University of Marburg (AZ: 07/14) and University of Münster (AZ: 2014–422-b-S).

2.2. Measures

2.2.1. Mental disorders

Current and lifetime mental disorders were assessed using the Structured Clinical Interview for DSM-IV (SCID I) (Wittchen et al., 1997). The age of onset and the number of inpatient treatments were assessed via a semi-structured interview and the OPCRIT 4 system (McGuffin et al., 1991), which integrates information from different sources (e.g. hospital files, interviews). Depressive symptom severity was measured by expert-rating using the 21-item version of the Structured Interview Guide for the Hamilton Depression Rating Scale (HAMD) (Hamilton, 1960) and by self-report using the Beck Depression Inventory (BDI) (Hautzinger et al., 1995). Schizophrenia symptom severity was measured by expert-rating using the Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1984a) and the Scale for the Assessment of Positive Symptoms (SAPS) (Andreasen, 1984b). The severity of manic symptoms was measured using expert-rating with the Young Mania Rating Scale (Young et al., 1978) and anxiety severity by expert-rating using the Hamilton Anxiety Rating Scale (HAMA) (Hamilton, 1976). Intraclass correlation coefficients (ICCs) for all rater-based measures were >0.86.

2.2.2. Childhood maltreatment

Self-reported CM was assessed by the 28-item version of the Childhood Trauma Questionnaire (CTQ-SF (Bernstein et al., 2003), German Version (Wingenfeld et al., 2010)). The CTQ measures five types of CM experienced during childhood and adolescence: emotional abuse (α = 0.88), physical abuse (α = 0.82), sexual abuse (α = 0.93), emotional neglect (α = 0.92), and physical neglect (α = 0.61; all α in this sample). The response options range from 1 (= never true) to 5 (= very often true). To assess CM severity, the sum scores of the five subscales can be classified into four categories, ranging from ‘none to minimal‘ to ‘severe to extreme‘. We used the cutoff score ‘moderate to severe‘ to classify subjects as having a history of CM in this type, with reference to the cutoff values established by Bernstein et al. (2003).

2.3. Statistical analyses

Statistical analyses were performed using IBM SPSS 22.0 and SPSS AMOS 25. Firstly, group differences between the four main diagnostic groups (HC, SZ, BD, MDD) in terms of demographic characteristics, symptom severity, the different CM types, and the CM total scores were analyzed using ANOVA (in the case of equal variances) and Welch's ANOVA (in the case of unequal variances) for continuous data, and Chi-squared tests for dichotomous data. Post hoc tests were computed using Games-Howell tests. Differences in sample characteristics, the CM types, and the CM total scores between the two subgroups of acute depression (acute MDD and acute PDD) were compared using t-tests or Welch's t-tests. Next, bivariate Pearson correlations between CM and the symptom clusters in the combined sample were performed. Subsequently, to test specific associations between specific CM types and specific symptom clusters, a comprehensive path model analyzing the combined sample of all participants was calculated with SPSS AMOS 25 (Arbuckle, 2017). The five CM types (emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect) were included as independent variables and the measures of depressive symptoms (BDI), negative symptoms (SANS) and positive symptoms of SZ (SAPS), mania symptoms (YMRS), and anxiety symptoms (HAMA) as dependent variables. We followed an explorative approach and allowed all paths between the CM types and the symptom measures, as well as the covariation of CM types. Further bivariate Pearson correlations and hierarchical linear regression analyses were performed to determine whether CM and the five CM types provided incremental variances beyond demographic variables in predicting the age of onset in the three patient groups (MDD, BD, SZ), separately. In these analyses, demographic variables (age, gender, years of education) were entered in the first step and the CM total score or the five CM types in step two, as predictors for the age of onset.

3. Results

3.1. Sample composition

Descriptive statistics of the demographic and clinical characteristics of the entire sample are presented in Table 1. In short, the HC group was significantly younger than the three patient groups, and patients with BD were older than patients with SZ or MDD. There was a significantly higher percentage of men in the SZ group when compared with the HC and MDD groups. Differences in verbal intelligence between all groups were not significant, but patients with SZ reported fewer years of education than all other groups, and patients with MDD reported fewer years of education than the HC group. Information on all post hoc tests is presented in the online supplementary material (supplementary Table 1). As additional healthy subjects with a genetic risk for psychiatric disorders were explicitly recruited (see above), a relatively high proportion of the HC sample (19.7%) reported first-degree relatives with mental disorders. Of the HC sample, 18.2% reported at least one relative with MDD, 0.4% with schizophrenia/schizoaffective disorder, and 1.5% with BD.

3.2. Disorder-specific patterns of the prevalence of CM types

The means of the five CTQ subscales and the CTQ total scores for the four main diagnostic groups and the two MDD subgroups are presented in Table 2. Information on all post hoc tests is presented in the online supplementary material (supplementary Table 2). The four main diagnostic groups (HC, BD, SZ, MDD) differed significantly in CTQ total scores and in all CTQ subscores (emotional abuse: Welch's F (3260) = 127.96, p < .001; physical abuse: Welch's F(3258) = 41.59, p < .001; sexual abuse: Welch's F(3250) = 30.72, p < .001; emotional neglect: Welch's F(3269) = 156.88, p < .001; physical neglect: Welch's F(3261) = 82.65, p < .001; CTQ total score Welch's F(3260) = 153.35, p < .001). Post hoc comparisons using the Games-Howell test indicated that the CTQ total scores and the means of all CTQ subscales were significantly lower in the HC group than in the BD, SZ, and MDD groups. The effect sizes for the post hoc differences between HC and each of the three patient groups were large for emotional abuse (d = 0.90–1.01), large for emotional neglect (d = 0.90–1.15), medium for sexual abuse (d = 0.46–0.56), medium for physical abuse

Table 1
Demographical and clinical characteristics of patient groups and healthy controls.

	HC (n = 715)	SZ (n = 107)	BD (n = 103)	MDD (n = 604)	p	acute MDD (n = 195)	acute PDD (chronic) (n = 65)	p
	M (SD)	M (SD)	M (SD)	M (SD)		M (SD)	M (SD)	
Age	32.73 (12.59)	39.05 (11.55)	44.06 (12.44)	37.43 (13.53)	< 0.001[a]	35.47 (12.74)	43.23 (13.42)	< 0.001[c]
% Female	62.8	45.8	54.4	61.8	0.004[b]	59.0	53.8	0.473[b]
Years of Education	13.91 (2.48)	12.12 (2.63)	13.57 (2.68)	12.98 (2.73)	< 0.001[c]	12.55 (2.58)	12.67 (2.75)	0.746[c]
IQ (MWTB)	114.29 (13.68)	112.51 (14.60)	115.19 (14.37)	112.69 (14.02)	0.099[c]	111.27 (13.67)	110.03 (15.14)	0.539[c]
Age of onset	–	22.41 (8.15)	25.69 (11.82)	26.22 (12.74)	< 0.001[a]	26.09 (12.16)	28.86 (14.48)	0.168[a]
Number inpatient treatments	–	4.93 (4.59)	3.65 (3.59)	1.77 (2.31)	< 0.001[a]	1.97 (2.21)	2.82 (2.84)	0.031[a]
BDI	3.98 (4.16)	14.24 (9.79)	14.07 (10.32)	18.52 (11.32)	< 0.001[a]	23.38 (9.13)	29.19 (9.71)	< 0.001[c]
HAMD-21	1.42 (2.11)	8.22 (5.99)	7.43 (6.32)	9.82 (7.46)	< 0.001[a]	13.97 (6.36)	16.17 (6.43)	0.017[c]
SANS	0.12 (0.58)	4.69 (4.14)	2.02 (2.81)	2.84 (3.39)	< 0.001[a]	4.16 (3.67)	5.28 (3.61)	0.034[c]
SAPS	0.02 (0.20)	2.70 (3.25)	0.44 (1.01)	0.11 (0.49)	< 0.001[a]	0.17 (0.61)	0.22 (0.72)	0.620[c]
YMRS	0.58 (1.30)	2.57 (5.00)	4.30 (6.01)	1.36 (2.09)	< 0.001[a]	1.46 (2.28)	1.68 (2.01)	0.496[c]
HAMA	2.55 (3.06)	9.98 (6.69)	9.99 (7.70)	12.64 (8.64)	< 0.001[a]	16.05 (7.34)	19.78 (8.14)	0.001[c]
% acute	–	73.3	51.7	48.3		100	100	
% partly remitted	–	7.7	25.8	26.7		0	0	
% fully remitted	–	20.0	22.5	25.0		0	0	
No remission status	–	n = 42	n = 14	n = 1		–	–	

Notes. HC = healthy control group; SZ = schizophrenia; BD = bipolar disorder; MDD = major depressive disorder; PDD = persistent depressive disorder; BDI = Beck Depression Inventory; HAMD-21 = Hamilton Depression Scale; SANS = Scale for the Assessment of Negative Symptoms; SAPS = Scale for the Assessment of Positive Symptoms; YMRS = Young Mania Rating Scale; HAMA = Hamilton Anxiety Rating Scale.
[a] = Welch Test
[b] = Chi-Quadrat.
[c] = ANOVA

(d = 0.48–0.58), medium to large for physical neglect (d = 0.76–0.95), and large for the total CTQ score (d = 0.99–1.11) (supplementary Table 2). However, there were no significant differences between the three patient groups (SZ, BD, MDD) in terms of emotional abuse, physical abuse, sexual abuse, physical neglect, and the total CTQ score. To control for influences of demographic variables, we repeated the analyses as ANCOVAs, controlling for age, gender, and education. Results did not change, with the exception that SZ and MDD differed in the reported emotional neglect, with higher values for MDD (p = .04, Bonferroni corrected post-hoc test).

To investigate differences between reported CM in patients with PDD and patients with a non-chronic form of MDD, these two subgroups were compared separately. Patients with PDD reported significantly more emotional abuse (t(258) = −2.51, p = .01, d = 0.36), emotional neglect (t(258) = −3.32, p = .001, d = 0.47), sexual abuse (Welch's t (92) = −2.27, p = .03, d = 0.34), physical abuse (Welch's t (86) = −2.76, p = .01, d = 0.43), physical neglect (t(258) = −2.66, p = .008, d = 0.37), as well as higher CTQ sum scores (t(258)= −3.71, p < .001, d = 0.51) than patients with an acute non-chronic form of depression (Table 2).

Besides, we have examined two subgroups of the SZ group exploratory. Of the 107 patients in the SZ group, n = 39 were diagnosed with a schizoaffective disorder and n = 68 with schizophrenia. The two subgroups did not differ from each other in the total CTQ score, (t (105) = 1.08, p = .28) or in any of the CTQ subscales.

The percentage of patients in the various diagnostic groups with at least moderate to severe maltreatment reported in the CTQ is depicted in Fig. 1a. In the HC group, 15.0% of participants reported having experienced any type of at least moderate to severe CM, 56.1% in the SZ group, 56.3% in the BD group, and 57.1% in the MDD group. However, in patients with PDD, 75.4% reported having experienced any type of at least moderate to severe CM (Fig. 1a). In addition, patients with PDD reported more often having experienced multiple types of CM (Fig. 1b). In patients with PDD, 61.5% reported having experienced more than one type of CM, 39.0% in non-chronic depressive patients, 33.0% in patients with BD, 39.3% in patients with SZ, and 6.9% in the HC group. See supplementary material 3 for prevalence numbers of the other CM severity categories and supplementary material 4 for data on multi-type maltreatment in all groups.

3.3. Impact of CM types on symptom severity

Using bivariate Pearson correlations in the combined sample (HC, BD, SZ, and MDD), CM correlated significantly with depression severity (BDI: r = 0.49, p < .001; HAMD-21: r = 0.41, p < .001), anxiety (HAMA: r = 0.44, p < .001), severity of positive and negative

Table 2
Means and standard deviations of subscale scores and the total score of the Childhood Trauma Questionnaire (CTQ).

CTQ	HC (n = 715)	SZ (n = 107)	BD (n = 103)	MDD (n = 604)	p	acute MDD (n = 195)	acute PDD (chronic) (n = 65)	P
	M (SD)	M (SD)	M (SD)	M (SD)		M (SD)	M (SD)	
Emotional abuse	6.99 (2.87)	10.84 (5.11)	10.95 (5.53)	11.28 (5.27)	< 0.001[a]	11.22 (5.37)	13.14 (5.24)	0.013[b]
Emotional neglect	8.28 (3.55)	12.43 (4.73)	12.54 (5.67)	13.50 (5.38)	< 0.001[a]	13.37 (5.58)	16.09 (6.11)	0.001[b]
Sexual abuse	5.24 (1.24)	6.81 (3.77)	6.53 (3.41)	6.41 (3.36)	< 0.001[a]	6.06 (2.87)	7.18 (3.65)	0.026[a]
Physical abuse	5.57 (1.55)	6.92 (3.25)	6.70 (2.99)	7.11 (3.42)	< 0.001[a]	6.94 (3.02)	8.54 (4.33)	0.007[a]
Physical neglect	6.15 (1.79)	8.60 (3.16)	8.32 (3.25)	8.15 (3.27)	< 0.001[a]	8.00 (3.10)	9.23 (3.59)	0.008[b]
CTQ total score	32.23 (8.41)	45.60 (14.81)	45.05 (16.38)	46.45 (16.39)	< 0.001[a]	45.59 (15.54)	54.18 (17.98)	< 0.001[b]

Notes. CTQ = Childhood Trauma Questionnaire; M = mean; SD = standard deviation; HC = healthy control group; SZ = schizophrenia; BD = bipolar disorder; MDD = major depressive disorder; PDD = persistent depressive disorder
[a] = Welch-Test.
[b] = T-Test.

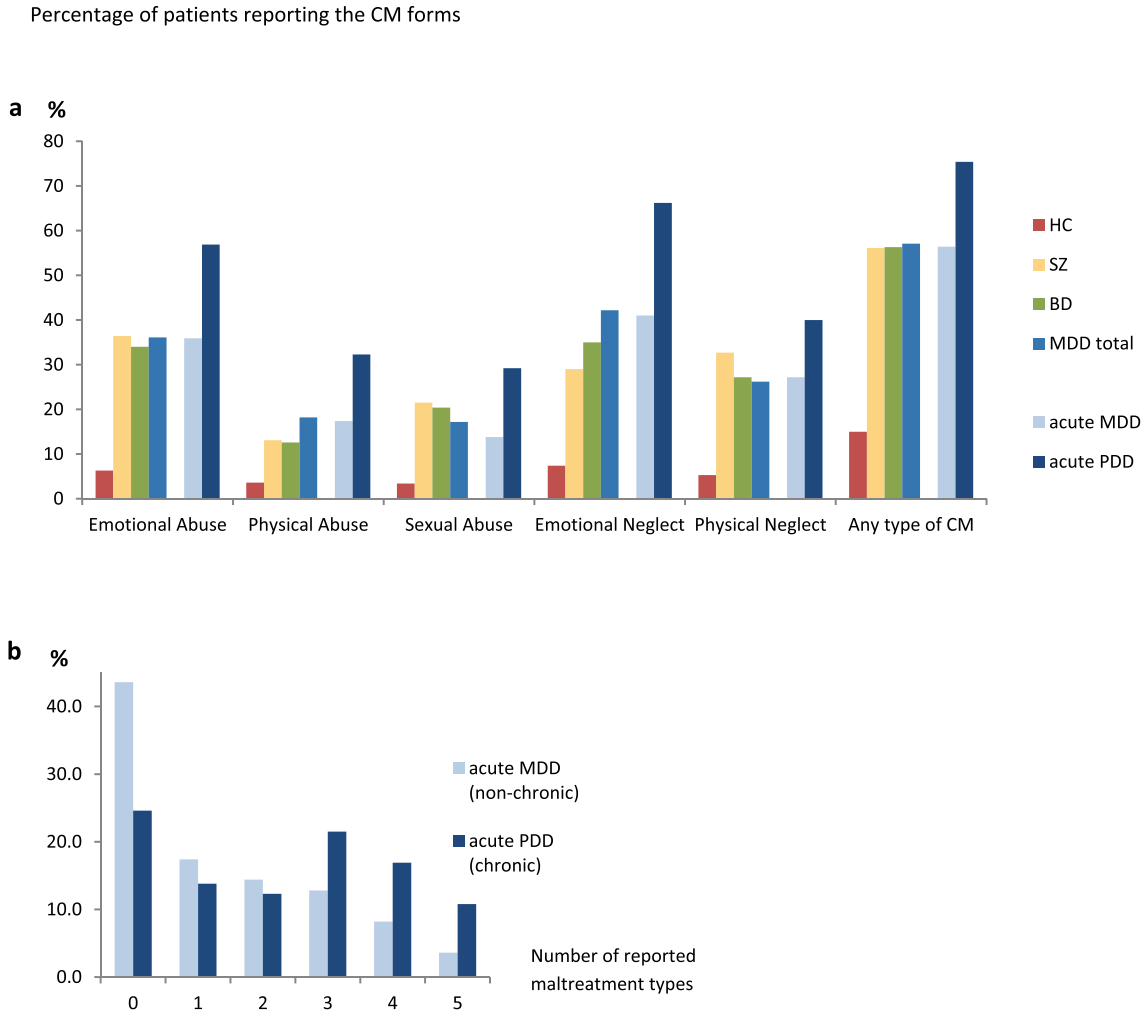

Fig. 1a Prevalence (%) of maltreatment type (at least moderate to severe) in HC, SZ, BD, MDD total, acute PDD, and acute MDD. **Fig. 1b** Prevalence (%) of multiple maltreatment types in acute PDD and acute MDD.

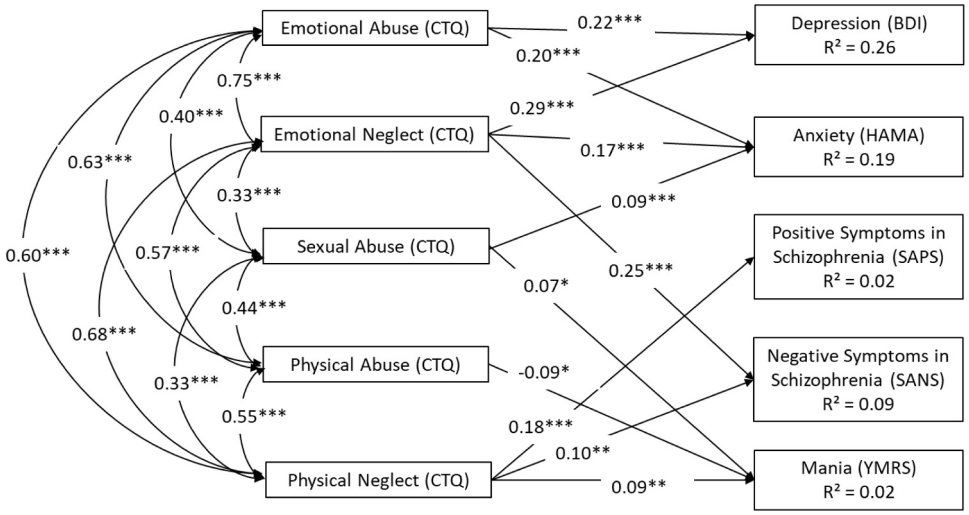

Fig. 2. Saturated model of childhood maltreatment types as predictors of symptom severity in the combined sample of healthy control participants, patients with depression, bipolar disorder, and schizophrenia. Standardized coefficients are reported. Only significant paths are presented. ***$p < .001$, ** $p < .01$, *$p < .05$.

Table 3a
Hierarchical regression analyses with demographic variables and the childhood maltreatment total score as predictors for age of onset of major depressive disorder, bipolar disorder, and schizophrenia.

Variable	MDD age of onset (n = 592)	BD age of onset (n = 102)	SZ age of onset (n = 103)
Step 1[a] adding age, gender, years of education			
R^2	0.47	0.25	0.22
F	175.16***	11.15***	9.20***
Step 2: adding childhood maltreatment			
Age (β)	0.70***	0.50***	0.46***
Gender (β)	–0.05	0.03	0.03
Years of edu. (β)	–0.05	0.08	0.06
CTQ (β)	–0.19***	–0.19*	–0.05
R^2	0.51	0.29	0.22
F	150.15***	9.74***	6.93***
Δ R^2	0.03	0.03	<0.01
Δ F	40.14***	4.37*	0.32

symptoms of SZ (SAPS: $r = 0.08, p = .002$; SANS: $r = 0.27, p < .001$), and mania (YMRS: $r = 0.13, p < .001$) (for a complete correlation table and correlations in the separate groups see supplementary material 5).

The path model with the CM types as independent variables and symptom clusters as dependent variables is presented in Fig. 2. When all CM types were included concurrently, emotional abuse predicted the severity of depression and anxiety. Emotional neglect predicted the severity of depression, anxiety, and negative symptoms of SZ. Sexual abuse predicted anxiety and mania. Physical abuse predicted lower levels of mania. Physical neglect predicted positive and negative symptoms of SZ as well as mania

3.4. Impact of CM and CM types on the age of onset

Using bivariate Pearson correlations in the MDD group, CM correlated with the age of onset ($r = -0.13, p < 0.01$). In the BD group, CM did not significantly correlate with age of onset ($r = -0.18, p = .07$). Also, in the SZ group, CM did not correlate significantly with age of onset ($r = 0.07, p = .50$) (see supplementary Tables 6 – 8). Hierarchical linear regression analyses were performed to predict the age of onset in the three patient groups, separately (Table 3). Adding the CTQ total score in the second step of the regression significantly improved the prediction of the age of onset in the MDD and BD groups (Table 3a). A higher CTQ total score predicted a lower age of onset in these patients. Adding the CTQ total score did not improve the prediction of the age of onset in the SZ group. However, when including the CTQ subscales in the second step of the analyses instead of the CTQ total score, a more differentiated picture emerged (Table 3b). In the MDD group, emotional abuse and physical neglect predicted a younger age of onset. In the BD group, no single maltreatment type significantly predicted a younger age of onset – however, since the effect of emotional neglect on the age of onset was comparatively high (β = –0.21), this might be due to the lower sample size. In the SZ group, emotional abuse predicted a younger age of onset, while physical abuse predicted an older age of onset.

Table 3b
Hierarchical regression analyses with demographic variables and childhood maltreatment types as predictors for age of onset of major depressive disorder, bipolar disorder, and schizophrenia.

Variable	MDD age of onset (n = 592)	BD age of onset (n = 102)	SZ age of onset (n = 103)
Step 1[a] adding age, gender, years of education			
R^2	0.47	0.25	0.22
F	175.16***	11.15***	9.20***
Step 2: adding childhood maltreatment types			
Age (β)	0.69***	0.50***	0.42***
Gender (β)	–0.05	0.01	0.08
Years of education (β)	–0.05	0.09	0.12
Emotional abuse (β)	–0.09*	0.03	–0.33*
Emotional neglect (β)	–0.03	–0.21	0.00
Sexual abuse (β)	–0.04	–0.07	–0.08
Physical abuse (β)	0.03	–0.09	0.24*
Physical neglect (β)	–0.10*	0.11	0.14
R^2	0.51	0.30	0.32
F	75.54***	5.08***	5.62***
Δ R^2	0.04	0.05	0.11
Δ F	8.80***	1.33	2.93*

Notes. Standardized betas presented are from final model (all steps included). MDD = major depressive disorder; BD = bipolar disorder; SZ = schizophrenia; CTQ = Childhood Trauma Questionnaire;.*** $p < .001$; ** $p < .01$; * $p < .05$.

4. Discussion

4.1. Main study findings and comparisons with other studies

The first aim of this study was to examine the prevalence of CM types in different mental disorders. Our results showed that the prevalence of reported CM of all types (emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect) was higher in all three patient groups (MDD, BD, SZ) when compared to the HC group. Almost 60% of patients, in all three patient groups, reported having experienced at least moderate to severe maltreatment of one of the CM types. The highest prevalence was reported for emotional abuse, emotional neglect, and physical neglect in all groups and the three patient groups differed most from the HC group in the reported exposures to these three CM types. Differences in CM prevalence between the HC group and the patient groups may even be underestimated since HC participants with exposure to CM were explicitly recruited due to other research questions of the FOR 2107 project. However, there were no differences between the three patient groups (MDD, BD, SZ) in the prevalence of the five reported types of CM. This is in line with a recent meta-analysis, which concluded that rates of CM in BD appear to be similar to those observed in SZ and MDD (Palmier-Claus et al., 2016).

Next, we compared two subgroups of depressed patients. As hypothesized, patients with acute PDD reported significantly more CM of all types than patients with acute MDD or patients with SZ or BD. More than 75% of patients with PDD reported having experienced at least moderate to severe maltreatment of one of the CM types, with emotional abuse (57%) and emotional neglect (66%) being most frequently reported. Our results indicate that patients with PDD are even more often affected by CM than other patients, especially by emotional abuse and emotional neglect. This finding is in line with Van Randenborgh et al., (2012), while other studies have reported no differences in CM between PDD and MDD (Brakemeier et al., 2018; Sung et al., 2012).

The second aim of this study was to examine the impact of the CM types on symptom severity of different symptom clusters in the combined sample with a comprehensive path model including all CM types and all symptom clusters. We found that emotional abuse and emotional neglect predicted depression and anxiety severity. Emotional neglect predicted additionally negative symptoms of SZ. Sexual abuse was associated with anxiety and mania. Physical neglect predicted positive and negative symptoms of SZ and mania, while physical abuse only predicted lower levels of mania. The finding that depression severity had the strongest associations with emotional maltreatment corresponds to previous findings (Humphreys et al., 2020). Also, the finding that sexual abuse was correlated with the severity of anxiety symptoms is in accordance with the theory by Sheridan and McLaughlin (2014), which argues that threat-related maltreatment should lead to a heightened threat processing. However, according to this theory, physical abuse should also predict symptoms of anxiety, which was not supported by our results. The result that positive

symptoms of SZ and mania were associated in particular with physical neglect does not correspond to most previous findings, which highlight the role of emotional abuse (Aas et al., 2016). However, our results concerning mania and positive symptoms should be interpreted with caution, as the sample sizes of the BD and SZ group were small and only some of these individuals were in an acute psychotic or manic phase at the time of measurement.

The third aim was to examine the impact of CM and specific CM types on the age of onset of SZ, BD, and MDD. In MDD, reported CM predicted a younger age of onset (in line with previous research (Nelson et al., 2017)), with emotional abuse and physical neglect being the strongest predictors. In the BD group, reported CM also predicted a younger age of onset, which is also in line with previous research (Agnew-Blais and Danese, 2016). No specific CM type was significant in predicting age of onset in the BD group, but this might be due to the smaller sample size in this group. In the SZ group, the total CTQ score did not significantly predict the age of onset. However, this might be due to contrary effects of different CM types – while emotional abuse predicted a younger age of onset, physical abuse predicted an older age of onset.

4.2. Strengths and limitations

Instead of looking at one specific diagnostic group and one specific maltreatment type, we included a large sample of patients with different diagnoses, and we investigated all five types of CM. All patients, regardless of diagnosis, answered the same set of questionnaires and interviews considering a wide range of symptoms. We also differentiated between chronic (PDD) and non-chronic forms of depression. Our sample of patients, with severe mental disorders, reflects the psychiatric reality and complements studies with large representative samples (as e.g. Green et al., 2010; Kessler et al., 2010).

However, the following limitations must be considered when interpreting our results: Firstly, a limitation is the use of a retrospective self-report measure to assess CM which might be subject to biases. In particular, the emotional neglect scale measures rather subjective perceptions of parenting than concrete parental behavior, which could lead to an overestimation of correlations with current psychopathology. Moreover, the diagnostic groups in this study differed in their sample sizes, which were lower for the BD and SZ group than for the HC and MDD group. The power to detect small effects of CM on symptom severity might be limited due to the sample sizes of the BD (n = 103) and SZ (n = 107) groups. In future studies, the developmental timing of maltreatment should be recorded. It has been argued that not only the type of exposure to CM determines the variety of different outcomes, but also the timing and severity of exposure and a large number of genetic and protective factors (Pietrek et al., 2013; Teicher and Samson, 2013).

4.3. Clinical implications and future research

These findings highlight the importance of well-evaluated primary (directed at the general population) and secondary (directed at high-risk groups) prevention programs before CM occurs. Preventing CM should become a political priority worldwide to eliminate suffering and reduce social costs. Moreover, tertiary prevention programs for families where CM has occurred are necessary for preventing CM recurrences and reducing negative consequences.

In clinical practice, the awareness of CM as a transdiagnostic target should be raised. Patients exposed to CM may represent clinically distinct subtypes who require different treatments tailored to their specific problems and needs (Teicher and Samson, 2013). A large number of studies is linking CM to structural and functional brain differences (Dannlowski et al., 2012; Nemeroff, 2016; Teicher et al., 2016) as well as alterations in autonomic and hypothalamic-pituitary-adrenal responses to psychological stressors (Strüber et al., 2014). These changes may also be related to psychological mechanisms linking CM and psychopathology, such as emotional regulation, attachment, social cognition, and dysfunctional cognitions (Jennissen et al., 2016; Schierholz et al., 2016; Struck et al., 2020). Of great importance for clinical practice are also buffering effects, predicting resilience to psychopathology despite CM, as e.g. other safe and supportive relationships in childhood, adolescence, and adulthood (Collishaw et al., 2007; Jaffee et al., 2017). More studies investigating possible psychological mediators and buffering effects of the relationship between CM and psychopathology are needed.

Some therapeutic approaches – such as Schema Therapy (Young et al., 2003) and the Cognitive Behavioral System of Psychotherapy (CBASP) (McCullough Jr, 2003) – already explicitly consider and address CM and its consequences. For example, Schema Therapy focusses on early maladaptive schemas, coping styles, and emotion regulation difficulties resulting from CM exposure. CBASP is based on the assumption that changes in social cognition and maladaptive interpersonal behaviors are a consequence of early interpersonal trauma. Both psychotherapy procedures explicitly describe strategies and attitudes of shaping the therapeutic relationship that enable healing corrective relationship experiences: e.g. in Schema Therapy “limited reparenting” and in CBASP “disciplined personal involvement with interpersonal discrimination exercises”.

Future research should address CM as a moderator in clinical trials so that psychotherapy approaches can be identified to effectively treat patients with CM. For example, studies indicate that CBASP may be superior to antidepressant monotherapy (Nemeroff et al., 2003) or supportive psychotherapy (Klein et al., 2018) in PDD patients reporting a history of CM, but not in PDD patients without a history of CM. In addition, process research or dismantling studies could help identify which strategies help these patients. Through such research, interventions and treatment conditions can be better tailored to the needs of this clinical subgroup. We require individualized evidence-based psychological treatments that specifically address the relevant skill deficits and problems associated with exposure to CM, thereby increasing response rates for this subgroup.

Author contributions statement

A.K., U.D., I.N., and T.K. designed work package 1 of the FOR 2107 project, in which this study is part of. N.S., A.K., and E.-L.B. formulated the research questions of this article. A.K., F.S., S.S., U.M., K.B., U.D., I.N., and T.K. contributed to data collection. N.S. analyzed and interpreted data and wrote the first manuscript in collaboration with E.-L.B.. A.K., F.S., S.S., U.M., K.B., U.D., I.N., and T.K. critically revised the article. All authors have approved the submitted work.

Declaration of Competing Interest

T.K. received unrestricted educational grants from Servier, Janssen, Recordati, Aristo, Otsuka, and Neuraxpharm. The authors declare no competing interests.

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Supporting Information

Additional Supporting Information may be found in the online version of this article

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2020.113398.

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Supplementary Material Table 1.
Games-Howell post hoc tests for differences in demographic and clinical characteristics

Outcome Variable	Comparisons	Mean difference	Std. Error	*p*	95% CI Lower Bound	95% CI Upper Bound
Age	HC vs. MDD	-4.696	.724	.000	-6.56	-2.83
	HC vs. BD	-11.324	1.313	.000	-14.74	-7.91
	HC vs. SZ	-6.312	1.212	.000	-9.46	-3.16
	MDD vs. BD	-6.628	1.343	.000	-10.12	-3.14
	MDD vs. SZ	-1.616	1.245	.565	-4.85	1.62
	BD vs. SZ	5.012	1.658	.015	.72	9.31
Gender	HC vs. MDD			>.05[a]		
	HC vs. BD			>.05[a]		
	HC vs. SZ			<.05[a]		
	MDD vs. BD			>.05[a]		
	MDD vs. SZ			<.05[a]		
	BD vs. SZ			>.05[a]		
Years of education	HC vs. MDD	.930	.145	.000	.56	1.30
	HC vs. BD	.342	.280	.614	-.39	1.07
	HC vs. SZ	1.793	.271	.000	1.09	2.50
	MDD vs. BD	-.588	.286	.174	-1.33	.16
	MDD vs. SZ	.863	.278	.012	.14	1.59
	BD vs. SZ	1.451	.367	.001	.50	2.40
MWTB	HC vs. MDD	1.603	.768	.158	-.37	3.58
	HC vs. BD	-.901	1.526	.935	-4.87	3.07
	HC vs. SZ	1.775	1.502	.640	-2.13	5.68
	MDD vs. BD	-2.504	1.546	.371	-6.53	1.52
	MDD vs. SZ	.172	1.523	.999	-3.79	4.13
	BD vs. SZ	2.676	2.014	.546	-2.54	7.89
Age of onset	HC vs. MDD	-	-	-	-	-
	HC vs. BD	-	-	-	-	-
	HC vs. SZ	-	-	-	-	-
	MDD vs. BD	.537	1.281	.908	-2.50	3.57
	MDD vs. SZ	3.815	.957	.000	1.55	6.08
	BD vs. SZ	3.279	1.419	.057	-.08	6.63
Number inpatient treatments	HC vs. MDD	-1.763	.095	.000	-2.01	-1.52
	HC vs. BD	-3.642	.360	.000	-4.58	-2.70
	HC vs. SZ	-4.925	.462	.000	-6.13	-3.72
	MDD vs. BD	-1.879	.373	.000	-2.85	-.91
	MDD vs. SZ	-3.162	.471	.000	-4.39	-1.93
	BD vs. SZ	-1.283	.586	.130	-2.80	.24
BDI-II	HC vs. MDD	-14.535	.491	.000	-15.80	-13.27
	HC vs. BD	-10.089	1.039	.000	-12.80	-7.38
	HC vs. SZ	-10.257	.987	.000	-12.83	-7.68
	MDD vs. BD	4.446	1.128	.001	1.52	7.38
	MDD vs. SZ	4.278	1.080	.001	1.47	7.08
	BD vs. SZ	-.168	1.416	.999	-3.84	3.50
HAMD-21	HC vs. MDD	-8.401	.315	.000	-9.21	-7.59
	HC vs. BD	-6.005	.634	.000	-7.66	-4.35
	HC vs. SZ	-6.796	.587	.000	-8.33	-5.26
	MDD vs. BD	2.396	.699	.004	.58	4.21
	MDD vs. SZ	1.605	.656	.073	-.10	3.31
	BD vs. SZ	-.791	.857	.792	-3.01	1.43

SANS	HC vs. MDD	-2.722	.140	.000	-3.08	-2.36
	HC vs. BD	-1.903	.281	.000	-2.64	-1.17
	HC vs. SZ	-4.575	.407	.000	-5.64	-3.51
	MDD vs. BD	.819	.312	.047	.01	1.63
	MDD vs. SZ	-1.853	.429	.000	-2.97	-.74
	BD vs. SZ	-2.673	.493	.000	-3.95	-1.39
SAPS	HC vs. MDD	-.092	.022	.000	-.15	-.04
	HC vs. BD	-.414	.101	.000	-.68	-.15
	HC vs. SZ	-2.681	.318	.000	-3.51	-1.85
	MDD vs. BD	-.322	.103	.012	-.59	-.05
	MDD vs. SZ	-2.589	.319	.000	-3.42	-1.76
	BD vs. SZ	-2.266	.334	.000	-3.14	-1.40
YMRS	HC vs. MDD	-.781	.098	.000	-1.03	-.53
	HC vs. BD	-3.729	.597	.000	-5.29	-2.17
	HC vs. SZ	-1.991	.488	.001	-3.26	-.72
	MDD vs. BD	-2.948	.601	.000	-4.52	-1.38
	MDD vs. SZ	-1.210	.493	.073	-2.50	.08
	BD vs. SZ	1.738	.768	.110	-.25	3.73
HAMA	HC vs. MDD	-10.089	.370	.000	-11.04	-9.14
	HC vs. BD	-7.438	.774	.000	-9.46	-5.42
	HC vs. SZ	-7.429	.660	.000	-9.15	-5.71
	MDD vs. BD	2.651	.843	.011	.46	4.84
	MDD vs. SZ	2.660	.739	.002	.74	4.58
	BD vs. SZ	.009	1.005	1.000	-2.59	2.61

Notes. HC = healthy control; BD = bipolar disorder; MDD = major depressive disorder; SZ = schizophrenia; [a] = compared with standardized residuals; MWTB = Mehrfachwahl-Wortschatz-Intelligenztest (verbal intelligence); BDI-II = Beck's Depression Inventory-II; HAMD = Hamilton Depression Scale; SANS = Scale for the Assessment of Negative Symptoms; SAPS = Scale for the Assessment of Positive Symptoms; YMRS = Young Mania Rating Scale; HAMA = Hamilton Anxiety Rating Scale.

Supplementary material Table 2.
Games-Howell post hoc tests for differences in childhood maltreatment

Outcome Variable	Comparisons	Mean difference	Std. Error	*p*	95% CI Lower Bound	95% CI Upper Bound	*d*
emotional abuse	HC vs. MDD	-4.30	0.24	<.001	-4.91	-3.68	1.01
	HC vs. BD	-3.97	0.56	<.001	-5.41	-2.52	0.90
	HC vs. SZ	-3.86	0.51	<.001	-5.17	-2.54	0.93
	MDD vs. BD	0.33	0.59	.942	-1.19	1.86	-0.06
	MDD vs. SZ	0.44	0.54	.845	-0.96	1.84	-0.09
	BD vs. SZ	0.11	0.74	.999	-1.80	2.02	-0.02
physical abuse	HC vs. MDD	-1.54	0.15	<.001	-1.93	-1.15	0.58
	HC vs. BD	-1.13	0.30	.001	-1.91	-0.35	0.48
	HC vs. SZ	-1.35	0.32	<.001	-2.18	-0.51	0.53
	MDD vs. BD	0.41	0.33	.589	-0.44	1.26	-0.13
	MDD vs. SZ	0.19	0.34	.943	-0.70	1.09	-0.06
	BD vs. SZ	-0.22	0.43	.958	-1.33	0.90	0.07
sexual abuse	HC vs. MDD	-1.17	0.14	<.001	-1.54	-0.79	0.46
	HC vs. BD	-1.29	0.34	.001	-2.18	-0.41	0.50
	HC vs. SZ	-1.57	0.37	<.001	-2.53	-0.62	0.56
	MDD vs. BD	-0.13	0.36	.985	-1.07	0.81	0.04
	MDD vs. SZ	-0.41	0.39	.721	-1.42	0.60	0.11
	BD vs. SZ	-0.28	0.50	.943	-1.56	1.00	0.08
emotional neglect	HC vs. MDD	-5.22	0.26	<.001	-5.88	-4.56	1.15
	HC vs. BD	-4.26	0.58	<.001	-5.76	-2.76	0.90
	HC vs. SZ	-4.15	0.48	<.001	-5.39	-2.91	0.99
	MDD vs. BD	0.96	0.60	.383	-0.60	2.52	-0.17
	MDD vs. SZ	1.07	0.51	.152	-0.24	2.39	-0.21
	BD vs. SZ	0.11	0.72	.999	-1.76	1.98	-0.02
physical neglect	HC vs. MDD	-1.99	0.15	<.001	-2.38	-1.61	0.76
	HC vs. BD	-2.17	0.33	<.001	-3.02	-1.31	0.83
	HC vs. SZ	-2.44	0.31	<.001	-3.26	-1.63	0.95
	MDD vs. BD	-0.18	0.35	.958	-1.08	0.73	0.05
	MDD vs. SZ	-0.45	0.33	.528	-1.32	0.41	0.14
	BD vs. SZ	-0.28	0.44	.923	-1.42	0.87	0.09
CTQ total	HC vs. MDD	-14.22	0.74	<.001	-16.12	-12.32	1.09
	HC vs. BD	-12.82	1.64	<.001	-17.11	-8.53	0.99
	HC vs. SZ	-13.37	1.47	<.001	-17.19	-9.55	1.11
	MDD vs. BD	1.40	1.75	.854	-3.14	5.94	-0.09
	MDD vs. SZ	0.85	1.58	.950	-3.25	4.95	-0.05
	BD vs. SZ	-0.55	2.16	.994	-6.14	5.04	0.04

Notes. HC = healthy control; BD = bipolar disorder; MDD = major depressive disorder; SZ = schizophrenia.

Supplementary material table 3. Prevalence of each childhood maltreatment subtype categorized along a gradient of four severity levels in healthy control participants and patients with schizophrenia, bipolar disorder, depression, and persistent depressive disorder

CM Subtype	Group	None to minimal %	Low to moderate %	Moderate to severe %	Severe to extreme %
Emotional abuse	HC	80.6	13.1	4.2	2.1
	SZ	42.1	21.5	17.8	18.7
	BD	42.7	23.3	12.6	21.4
	MDD	40.2	23.7	12.9	23.2
	PDD	24.6	18.5	21.5	35.4
Physical abuse	HC	92.6	3.8	2.8	0.8
	SZ	75.7	11.2	4.7	7.5
	BD	76.7	10.7	6.8	4.9
	MDD	72.2	9.6	9.8	6.0
	PDD	58.5	9.2	15.4	15.4
Sexual abuse	HC	93.0	3.6	2.8	0.6
	SZ	61.7	16.8	14.0	7.5
	BD	67.0	12.6	14.6	5.8
	MDD	74.3	8.4	9.3	7.9
	PDD	63.1	7.7	13.8	15.4
Emotional neglect	HC	71.9	20.7	4.9	2.5
	SZ	32.7	38.3	10.3	18.7
	BD	36.9	28.2	9.7	25.2
	MDD	26.8	31.0	17.2	25.0
	PDD	18.5	15.4	16.9	49.2
Physical neglect	HC	80.8	13.8	4.8	0.6
	SZ	44.9	22.4	19.6	13.1
	BD	47.6	25.2	14.6	12.6
	MDD	52.0	21.9	17.2	8.9
	PDD	43.1	16.9	23.1	16.9

Supplementary material table 4. Prevalence of multi-type maltreatment in healthy controls and patients with schizophrenia, bipolar disorder, depression, and persistent depressive disorder

Group	no CM %	1 CM type %	2 CM types %	3 CM types %	4 CM types %	5 CM types %
HC	85.0	8.1	4.1	1.7	0.8	0.3
SZ	43.9	16.8	16.8	10.3	9.3	2.8
BD	43.7	23.3	11.7	6.8	10.7	3.9
MDD	42.9	17.2	14.2	12.7	8.6	4.3
PDD	24.6	13.8	12.3	21.5	16.9	10.8

Notes. HC = healthy control; SZ = schizophrenia; BD = bipolar disorder; MDD = major depressive disorder; PDD = persistent depressive disorder.

Supplementary material Table 5. Bivariate correlations in the combined sample

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. CTQ total	1													
2. emotional abuse	.89***	1												
3. emotional neglect	.89***	.75***	1											
4. sexual abuse	.57***	.40***	.33***	1										
5. physical abuse	.77***	.63***	.57***	.44***	1									
6. physical neglect	.79***	.60***	.68***	.33***	.55***	1								
7. BDI	.49***	.46***	.48***	.23***	.33***	.36***	1							
8. HAMD-21	.41***	.38***	.39***	.21***	.28***	.31***	.78***	1						
9. HAMA	.44***	.41***	.40***	.25***	.31***	.32***	.74***	.83***	1					
10. SAPS	.08**	.06*	.07**	.01	.05	.14***	.10***	.15***	.14***	1				
11. SANS	.27***	.21***	.29***	.12***	.16***	.24***	.56***	.62***	.55***	.31***	1			
12. YMRS	.13***	.11***	.11***	.10***	.05*	.13***	.09**	.18***	.22***	.37***	.12***	1		
13. Age	.21***	.12***	.23***	.14***	.18***	.18***	.10***	.11***	.14***	.06*	.11***	.13***	1	
14. Gender	.06*	.10***	-.02	.16***	.04	-.02	.02	-.01	.05	-.12***	-.08**	-.09***	.00	1
15. Years of education	-.18***	-.13***	-.14***	-.12***	-.17***	-.19***	-.20***	-.20***	-.19***	-.10***	-.21***	-.03	.01	.00

Notes. BDI = Beck Depression Inventory; HAMD = Hamilton Depression Scale; SANS = Scale for the Assessment of Negative Symptoms; SAPS = Scale for the Assessment of Positive Symptoms; YMRS = Young Mania Rating Scale; HAMA = Hamilton Anxiety Rating Scale. *** $p < .001$; ** $p < .01$; * $p < .05$.

Supplementary material Table 6. Bivariate correlations in the group of patients with major depressive disorder

Variable	1.	2.	3.	4.	5.
1. CTQ	1				
2. Age	.08	1			
3. Gender	.09*	.01	1		
4. Years of education	-.18***	-.01	.01	1	
5. Age of onset	-.13**	.69	-.06***	-.02	1
6. Number inpatient treatments	.21***	.20	-.07***	-.10*	.01

Notes. *** $p < .001$; ** $p < .01$; * $p < .05$.

Supplementary material Table 7. Bivariate correlations in the group of patients with bipolar disorder

Variable	1.	2.	3.	4.	5.
1. CTQ	1				
2. Age	-.01	1			
3. Gender	.32**	-.11	1		
4. Years of education	.03	.03	-.07	1	
5. Age of onset	-.18	.50***	-.09	.09	1
6. Number of inpatient treatments	.06	.24*	-.09	.01	.03

Notes. *** $p < .001$; ** $p < .01$; * $p < .05$.

Supplementary material Table 8. Bivariate correlations in the group of patients with schizophrenia or schizoaffective disorder

Variable	1.	2.	3.	4.	5.
1. CTQ	1				
2. Age	.28**	1			
3. Gender	.19*	.26**	1		
4. Years of education	-.04	.29**	.22*	1	
5. Age of onset	.07	.46***	.14	.19	1
6. Number of inpatient treatments	.03	.15	-.13	-.05	-.05

Notes. *** $p < .001$; ** $p < .01$; * $p < .05$

Attachment and social support mediate the association between childhood maltreatment and depressive symptoms

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ABSTRACT

Objective: To examine attachment insecurity and low social support as potential mediators of the association between childhood maltreatment (CM) types and depression severity in patients with a lifetime history of major depressive disorders (MDD).

Method: Participants with an acute or remitted MDD (N = 580) completed questionnaires about CM (Childhood Trauma Questionnaire), attachment (Relationship Scales Questionnaire), social support (Social Support Questionnaire), and depression severity (Beck Depression Inventory). Mediation and path models with CM types as independent variables, attachment avoidance and anxiety as mediators and depression severity as dependent variable were calculated. In addition, a sequential mediation model with attachment insecurity and social support as mediators of the association between CM and depression was tested.

Results: Attachment avoidance and anxiety partially mediated the effect of CM on depression. In the path model including the different CM types, there were significant indirect effects of emotional abuse on depression via attachment anxiety and of emotional neglect on depression via attachment avoidance. Results also supported the hypothesized sequential mediation via attachment insecurity and social support.

Limitations: A cross-sectional design with a retrospective self-report measure of CM was used and the developmental timing of exposure to CM was not considered.

Conclusion: Our findings suggest that the effect of emotional abuse and emotional neglect on depression is partially mediated by attachment avoidance and anxiety. Further, the results support the hypothesis of a sequential mediation via attachment insecurity and social support. Accordingly, attachment insecurity is discussed as a target of psychotherapy for patients with MDD and CM.

1. Introduction

The direct relationship between childhood maltreatment (CM) and adult depressive psychopathology has been documented consistently (Infurna et al., 2016; Mandelli et al., 2015; Nelson et al., 2017). However, the psychological mechanisms and mediating variables of this relationship are still under debate. Research considering these mechanisms might help to improve tailoring psychotherapies to the individual needs of patients. One variable that has been identified as a promising mediator in previous studies is the attachment style (Hankin, 2005; Schierholz et al., 2016).

Attachment theory was first described by John Bowlby and further researched in observational and laboratory studies by Mary Ainsworth (Ainsworth et al., 2015; Bowlby, 1988). According to Bowlby, the attachment system is an inborn device that is activated by perceived threats and causes infants to seek proximity to an attachment figure

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(e.g. the parents), a behavior adaptive to survival. However, people develop their individual "working models" building upon experiences with attachment-figures and allowing them to predict future interactions through life (Bowlby, 1988). When attachment figures in early childhood are available, sensitive and responsive to the infant's proximity-seeking attempts, the infant is likely to develop a secure attachment style and to use attachment-figures as "safe haven" in times of distress, and as "secure base" in times of exploration. However, when attachment-figures are unavailable or unresponsive, infants do not experience that their proximity-seeking results in a reduction of distress (Bowlby, 1988). To cope with the unavailability of attachment-figures, they either use *hyperactivating* strategies (intensifying proximity-seeking attempts) or *deactivating* strategies (giving up proximity-seeking efforts) (Mikulincer and Shaver, 2003).

Insights of the attachment theory have also been transferred to adult romantic relationships. Adult attachment can be conceptualized in a model with two continuous dimensions: attachment anxiety and attachment avoidance (Mikulincer and Shaver, 2003). Attachment anxiety in romantic relationships is characterized e.g. by constant monitoring of the partner, strong efforts to maintain proximity, overdependence, and clinging behaviors (corresponding to *hyperactivating* strategies). On the other hand, avoidance is characterized e.g. by avoiding intimacy, interdependence, self-disclosure and a reluctance to confront relational conflicts (corresponding to *deactivating* strategies) (Mikulincer and Shaver, 2003). Low levels of attachment anxiety and avoidance correspond to attachment security. There is also initial evidence for differences in automatic brain reactivity to social signals, consistent with behavioral deactivating (for attachment avoidance) and hyperactivating (for attachment anxiety) strategies (Donges et al., 2012; Suslow et al., 2009). Moreover, while attachment avoidance might be negatively associated with gray matter volume in structures related to interoception and subjective feeling states, attachment anxiety might be positively associated with it (Acosta et al., 2018).

In a large number of cross-sectional and prospective studies, attachment insecurity – particularly anxious and less consistently avoidant attachment – was related to neuroticism, negative affectivity, depressive symptoms, and the onset of depressive episodes in non-clinical, high-risk as well as clinical samples (Eberhart and Hammen, 2006; Hankin et al., 2005; Mikulincer and Shaver, 2007). This is supported by a recent meta-analysis reporting significantly higher levels of depressive symptoms in individuals with insecure-preoccupied attachment style (high in attachment anxiety) but not in individuals with insecure-dismissing attachment style (high in attachment avoidance) compared with securely attached individuals (Dagan et al., 2018). Mikulincer and Shaver (2012) suggest that attachment insecurity reduces resilience in coping with stressful life events and therefore should be viewed as a general risk factor for mental disorders.

1.1. Attachment as a mediator between childhood maltreatment and depression

So far, only a few studies have considered attachment as a possible mediator of the effect of CM on the severity of depression. In non-clinical community or high-risk samples, attachment significantly mediated the effect of CM on psychological distress (Dion et al., 2019), internalizing symptoms (Muller et al., 2012) and depression (Bifulco et al., 2006; Hankin, 2005; Widom et al., 2018). However, in two of these studies, only attachment anxiety - and not avoidance - was identified as a significant mediator (Dion et al., 2019; Widom et al., 2018), while another study reported that both fearful (high avoidance and high anxiety) and angry-dismissive (high avoidance) attachment mediated the effect (Bifulco et al., 2006). Consequently, findings concerning the different attachment dimensions as mediators are inconsistent in non-clinical samples. Only one study so far looked at the indirect effect of CM on depression severity through attachment in a sample of patients with depression (Schierholz et al., 2016). They reported that avoidance in close relationships, emotion dysregulation, and a depressogenic attributional style conjointly mediated the relationship between CM and depression severity. However, in this study, avoidance was not identified as a specific mediator (Schierholz et al., 2016). Another study using a clinical sample found that attachment mediated the effect between interpersonal trauma (not restricted to CM) and depression severity (Fowler et al., 2013).

1.2. Types of childhood maltreatment, attachment, and depression

In this study, we consider five types of CM: emotional abuse, sexual abuse, physical abuse, and emotional as well as physical neglect (Butchart et al., 2006). A model developed by Riggs proposes that, in particular, emotional abuse by attachment figures in infancy and early childhood contributes to the development of insecure attachment organizations (Riggs, 2010). The model suggests that insecure attachment organization, in turn, leads to consequential problems, such as emotion regulation deficits, negative internal working models of self and others, deficits in social functioning and poor peer and adult romantic relationships which are, in turn, risk factors for psychopathology (Riggs, 2010). Empirical research supports the assumption that emotional maltreatment, in particular, contributes to insecure attachment. When all five types of CM were included concurrently in a sample of college students, only emotional abuse and emotional neglect predicted attachment to mothers and fathers (Lowell et al., 2014). In another study using a sample of university students, psychological maltreatment (synonymous with emotional maltreatment), physical maltreatment, and exposure to family violence were considered simultaneously as predictors in a mediation model with attachment as mediator and symptomatology as outcome variables (Muller et al., 2012). Only the indirect effect of psychological maltreatment on symptomatology through attachment remained significant, underlining the special role of emotional or psychological abuse and neglect (Muller et al., 2012). We, therefore, developed a path model including all CM types concurrently as predictors, anxious and avoidant attachment as mediators and depression severity as outcome variable. Based on the studies mentioned we hypothesized that only the effect of emotional abuse and emotional neglect on depression is mediated by attachment insecurity.

1.3. Sequential mediation model with social support

There are different possible pathways leading from attachment insecurity to depressive symptoms. One possible mechanism is, that attachment insecurity leads to more problems in interpersonal relationships and therefore to a poorer social network and less perceived social support. Initial findings indicate that a) attachment is a mediator in the relationship between CM and poorer perceived social support (Muller et al., 2008) and b) poorer perceived social support is a mediator in the relationship between attachment and psychopathology (Cloitre et al., 2008). Combining these individual results yields a sequential mediation model with attachment insecurity and poorer perceived social support as mediators of the relationship between CM and depression severity.

1.4. Aims of this study

First, we hypothesize that anxious and avoidant attachment mediates the relationship between CM and depressive symptoms in patients with acute or remitted MDD. Next, we consider different types of CM (emotional abuse, sexual abuse, physical abuse, emotional neglect and physical neglect) concurrently in a path model with CM types as predictors, anxious and avoidant attachment as mediators and depression severity as outcome. Based on previous findings, we hypothesize that only the effect of emotional abuse and emotional neglect on depression severity is mediated by attachment insecurity. Last, we test the proposed sequential mediation model with attachment insecurity and

poorer perceived social support as sequential mediators of the relationship between CM and depression severity.

2. Methods

2.1. Participants and procedure

Data for these analyses were drawn from the FOR 2107 research project, an ongoing multicenter study examining environmental and genetic risk factors and their interaction involved in the onset, etiology, and course of various mental disorders (http://for2107.de). A detailed study description is presented in a previous article (Kircher et al., 2018). Participants were recruited via public advertisements and from inpatient services at the Universities of Marburg and Münster. Inclusion criteria for all participants were a verbal IQ above 80, Western European ancestry, magnetic resonance imaging compatibility, and no history of severe neurological or medical disorders. Additional inclusion criteria for the MDD patient group examined in this study were an acute, partially remitted or remitted diagnosis of MDD assessed with SCID-I interviews (Wittchen et al., 1997) by trained psychologists.

All participants gave written informed consent. The FOR2107 cohort project (WP1) was approved by the Ethics Committees of the Medical Faculties, University of Marburg (AZ: 07/14) and University of Münster (AZ: 2014-422-b-S).

Of the $N = 629$ participants which met inclusion and exclusion criteria, 49 were excluded due to missing data in at least one of the questionnaires. The resulting sample consisted of 580 individuals with an acute (47%), partially remitted (27%), or remitted (26%) major depressive disorder. 62% of the participants were female and 38% male. They were 18 – 65 years old, with an average age of 37.2 years ($SD = 13.4$). The mean total education was 13.0 years. 32.2% of the participants lived alone, 37.7% with a partner, and 30.1% in some other form of cohabitation. 12.8 % were currently unemployed, 22.9% were working full-time, 13.6% part-time, 27.8% were currently undergoing training/studies, and 9.5% were retired. Patients with acute, partly remitted, and fully remitted depression did not differ with respect to age and living situation. Patients with fully remitted depression were more highly educated and less often unemployed than patients with acute depression. Participants had a median of two lifetime depressive episodes and a mean number of 1.7 inpatient treatments. 10.7 percent of the participants currently had a depressive episode that had lasted at least 24 months (chronic course). The mean measures of CM, attachment, perceived social support, and depression severity are presented in table 1.

2.2. Depressive Symptoms

The presence of a current or lifetime diagnosis of an MDD was assessed with the Structured Clinical Interview for DSM-IV (SCID I; Wittchen et al., 1997) by trained psychologists. The severity of depressive symptoms was measured by self-report using the Beck Depression Inventory (BDI), assessing with 21 Items the severity of depression in the last week (Hautzinger et al., 1995). In the present study, the internal consistency of the BDI was $\alpha = .91$.

2.3. Childhood maltreatment

Self-reported CM was assessed retrospectively by the 28-item version of the Childhood Trauma Questionnaire (CTQ-SF; Bernstein et al., 2003, German version: Wingenfeld et al., 2010). The CTQ measures five forms of CM experienced during childhood and adolescence: emotional abuse ($\alpha = 0.86$), physical abuse ($\alpha = 0.82$), sexual abuse ($\alpha = 0.93$), emotional neglect ($\alpha = 0.91$), and physical neglect ($\alpha = 0.63$, all α in this sample). The response options range from 1 (= *never true*) to 5 (= *very often true*). To indicate the severity level of CM, we applied the cutoff values established by Bernstein and Fink (Bernstein and Fink, 1998).

2.4. Adult Attachment

Adult attachment was measured by the 30-item version of the Relationship Scales Questionnaire (RSQ; Griffin and Bartholomew, 1994; German Version: Steffanowski et al., 2001). Confirmatory factor analyses suggest that a two-dimension model with the dimensions avoidance (e.g. “I worry about others getting too close to me.”) and anxiety (e.g. “I often worry that romantic partners don't really love me.”) is the best-fitting model (Kurdek, 2002; Roisman et al., 2007). Sum scores of these scales were computed according to this model (avoidance items: 10, 12, 13, 15, 20, 24, 29, 30, with $\alpha = .74$; anxiety items: 11, 18, 21, 23, 25, with $\alpha = .81$ in this sample).

2.5. Perceived Social Support

Perceived social support was measured by the 22-item version of a widely used German self-report instrument, the Social Support Questionnaire (F-SozU) (Fydrich et al., 2007). The questionnaire measures the subjective conviction to receive support and resources from the social network if necessary (Fydrich et al., 2007). The questionnaire consists of the three subscales emotional support, instrumental support, and social integration. A global score can be computed and is used in this study ($\alpha = 0.87$ in this sample).

2.6. Statistical Analyses

First, bivariate Pearson correlations were calculated for variables of interest with SPSS 25.0. To examine the hypothesized mediation with CM as the independent variable, the two attachment dimensions (avoidance/anxiety) as mediators and depression severity as dependent variable, a mediation analysis using the PROCESS Macro (Hayes, 2017; Model 4) for SPSS was performed. To test the statistical significance of

Table 1
Means, standard deviations, and bivariate correlations between severity of childhood maltreatment types, proposed mediators, and depression severity.

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Childhood Maltreatment	46.29	16.01	1								
2. Emotional Abuse	11.25	5.21	.87***	1							
3. Physical Abuse	7.10	3.37	.78***	.61***	1						
4. Sexual Abuse	6.37	3.23	.53***	.32***	.40***	1					
5. Emotional Neglect	13.46	5.37	.87***	.72***	.55***	.25***	1				
6. Physical Neglect	8.11	3.18	.78***	.55***	.55***	.29***	.67***	1			
7. Attachment Avoidance	2.89	0.71	.32***	.27***	.18***	.17***	.34***	.24***	1		
8. Attachment Anxiety	2.60	1.02	.16***	.20***	.09*	.02	.14**	.11*	.23***	1	
9. Social Support[a]	3.66	0.92	–.35***	–.30***	–.17***	–.04	–.44***	–.30***	–.49***	–.31***	1
10. Depression (BDI)	18.40	11.34	.32***	.29***	.24***	.15***	.29***	.23***	.42***	.35***	–.53***

Note. $N = 580$; BDI = Beck Depression Inventory; HAMA = Hamilton Anxiety Scale. [a] $n = 577$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

the indirect effects, we used bias-corrected 95% bootstrap confidence intervals based on 5000 bootstrap samples. Subsequently, to test specific effects of the five CM types, two path models were calculated with SPSS AMOS 25 (Arbuckle, 2017). The five CM types (emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect) were included as independent variables, the two attachment dimensions (anxiety, avoidance) again as mediators, and depression severity as dependent variable. In the first path analysis, we followed an explorative approach and allowed all correlations between the five CM types, all direct effects of CM types on depression severity and all indirect effects of CM types on depression severity via anxiety and avoidance in close relationships (saturated model, Fig. 2). Next, we tested a more restrictive model because we hypothesized that only the effects of emotional abuse and emotional neglect on depression severity were mediated by attachment. We included the same independent variables, dependent variable, and mediators as in the first path analysis, but we constrained the direct paths from physical abuse, sexual abuse and physical neglect to avoidance and anxiety to zero (theoretical model, Fig. 3). To compute bootstrap confidence intervals for the specific indirect effects via anxiety and avoidance in close relationships, the lavaan package in R was used (R Core Team, 2019; Rosseel, 2012). Finally, the hypothesized sequential mediation model with CM as independent variable, attachment insecurity as first mediator, perceived social support as subsequent mediator, and depression severity as dependent variable was tested (Fig. 4) using again the PROCESS Macro (Hayes, 2017; Model 6) for SPSS.

3. Results

3.1. Descriptive analyses and bivariate correlations

Table 1 presents the means and standard deviations of the variables, as well as zero-order correlations among the variables included in this study. 57.1 % of the participants reported that they have experienced at least moderate to severe CM in at least one CM type, according to the cutoff values established by Bernstein and Fink (Bernstein and Fink, 1998). The BDI scores ranged from 0 to 52 with a mean score of 18.4 (SD = 11.34) indicating on average mild to moderate depression severity. CM correlated with depression severity and attachment avoidance with moderate effect sizes and with attachment anxiety with a small effect size. Attachment avoidance and anxiety correlated with depression severity with a moderate to large effect size. All CM types correlated with each other at least with a moderate effect size, often with large effect sizes (Table 1).

Additional correlational analyses between demographic variables (age, years of education, living situation, and employment) and the independent variable (CM), the mediators (attachment anxiety, attachment avoidance, social support), and dependent variable (depression severity) in our models, resulted in the following significant correlations: age was negatively associated with attachment anxiety (r = –.23), years of education were positively associated with social support (r = .08) and negatively with CM (r = –.18) and depression severity (r = –.15). Living alone was positively associated with attachment avoidance (r = .12) and attachment anxiety (r = .11) and negatively with social support (r = –.19). There was a positive association between unemployment and depression severity (r = .14).

3.2. Mediation model

Results provided support for the hypothesized mediation model (Fig. 1). Specifically, greater CM scores significantly predicted higher depression, b = 0.27, 95% CI [0.20, 0.33]. Greater CM also predicted higher avoidance in close relationships, b = 0.36, 95% CI [0.27, 0.44] and higher anxiety in close relationships, b = 0.25, 95% CI [0.12, 0.38]. Avoidance and anxiety in close relationships were also significant predictors of depression when controlling for CM, avoidance: b = 0.23, 95% CI [0.17, 0.29], anxiety: b = 0.13, 95% CI [0.10, 0.17]. There were also significant indirect effects of CM on depression via avoidance, b = 0.08, 95% CI [0.05, 0.11], β = 0.10, CI [0.06, 0.13] and via anxiety in close relationships b = 0.03, 95% CI [0.02, 0.05], β = 0.04, 95% CI [0.02, 0.06]. The direct effect of CM on depression still remained significant after including the mediators, b = 0.15, 95% CI [0.09, 0.21], supporting a partial mediation model.

Owing to significant associations between years of education and CM as well as depression severity, we conducted a sensitivity analysis with correction for years of education. This yielded in only marginal changes of coefficients with all paths remaining significant.

3.3. Path model

We calculated the two path analyses (saturated and theoretical model) as described above. Fig 2. shows the significant standardized path coefficients of the saturated model and Fig 3. of the theoretical model.

The goodness-of-fit indices suggest that the theoretical model (Fig. 3) adequately fits the data, CFI = 0.998, RMSEA = 0.028. The model fit of the theoretical model is not significantly worse than that of the saturated model, χ^2 (6, N = 580) = 8.76, p = 0.19, while the AIC – that takes into account the parsimony of a model – indicates a better fit of the theoretical model (AIC = 84.76) when compared to the saturated model (AIC = 88.00). In the theoretical model, the total indirect effect of emotional abuse on depression severity via anxiety and avoidance in close relationships was significant, β = 0.07, 95% CI [0.02, 0.12]. This was mainly accounted for by the specific indirect effect via anxiety in close relationships, β = 0.05, 95% CI [0.02, 0.08] while the specific indirect effect via avoidance in close relationships was not significant β = 0.01, 95% CI [–0.02, 0.05]. The total indirect effect of emotional neglect on depression severity via anxiety and avoidance in close relationships was significant, β = 0.09, 95% CI [0.04, 0.15]. This was mainly accounted by the specific indirect effect via avoidance in close relationships, β = 0.09, 95% CI [0.05, 0.14], while the specific indirect effect via anxiety in close relationships was not significant, β = –0.001, 95% CI [–0.03, 0.03]. There were no significant direct effects from the CM types on depression severity. In the saturated model, the same paths were significant and, in addition, there was a significant path from sexual abuse on avoidance.

3.4. Sequential mediation model

Results provided support for the hypothesized sequential mediation model with CM as the independent variable, attachment insecurity as first mediator, perceived social support as subsequent mediator, and depression severity as dependent variable. Standardized path coefficients are presented in Fig. 4. There was a significant sequential indirect effect of CM on depression with insecure attachment as first mediator and perceived social support as second mediator, β = 0.04, 95% CI [0.03, 0.06]. The two indirect effects with a single mediator were also significant, via insecure attachment β = 0.08, 95% CI [0.05, 0.11]; via perceived social support β = 0.08, 95% CI [0.05, 0.12]. The direct effect of CM on depression still remained significant after including the mediators, β = 0.11, p = .002, supporting a partial mediation model.

Despite significant associations between the demographic variable living alone, insecure attachment and social support, we decided for theoretical reasons not to control for the variable living alone. Living alone might be a further consequence of insecure attachment, hence being a possible mediator of the link between insecure attachment and social support, instead of a confounding variable.

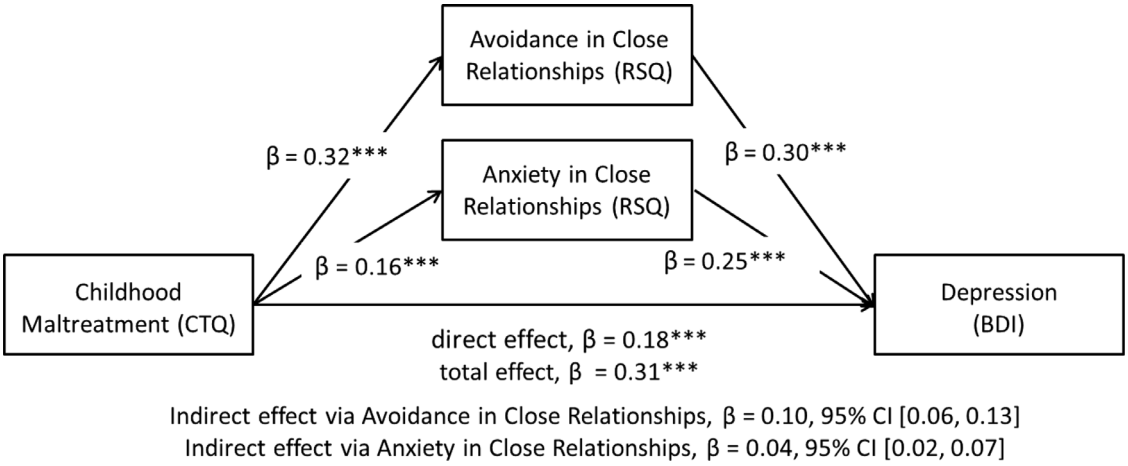

Fig. 1. Model of childhood maltreatment as a predictor of depression severity mediated by attachment types. Unstandardized coefficients are reported for each path. RSQ = Relationship Scales Questionnaire; CTQ = Childhood Trauma Questionnaire; BDI = Beck Depression Inventory. ***p < .001.

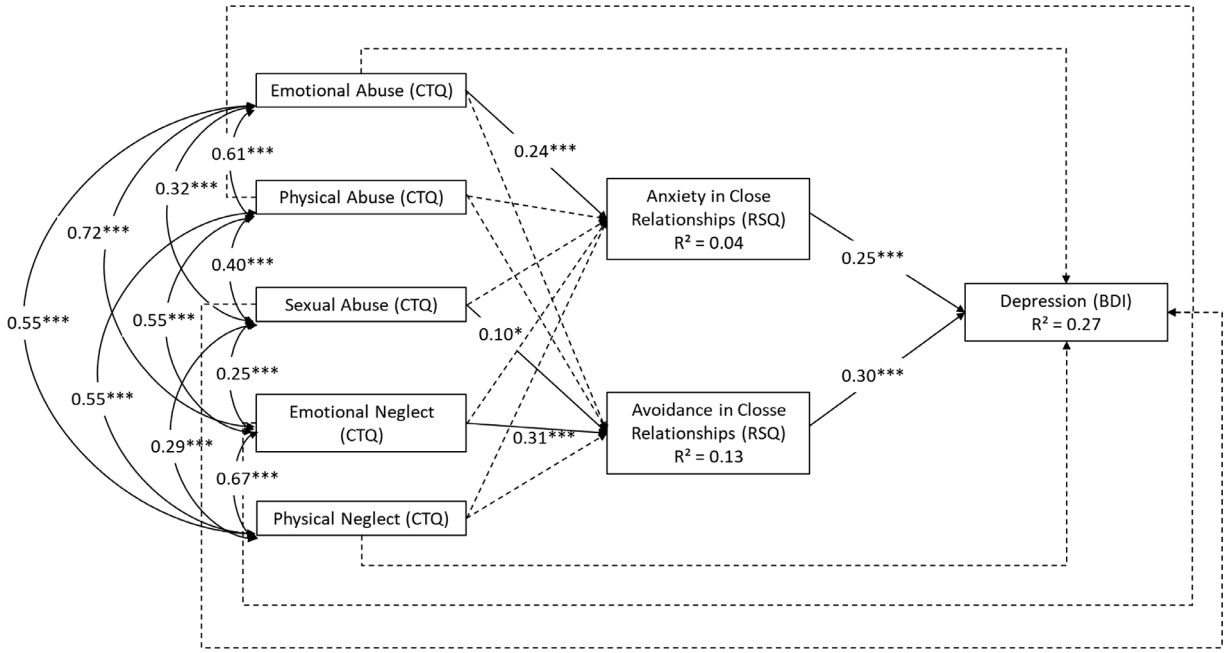

Fig. 2. Saturated model of childhood maltreatment types as predictors of depression severity mediated by attachment types. Standardized coefficients are reported. Solid paths are significant paths, dotted lines are not significant. RSQ = Relationship Scales Questionnaire; CTQ = Childhood Trauma Questionnaire; BDI = Beck Depression Inventory. ***p < .001, ** p < .01, *p < .05.

4. Discussion

4.1. Main findings

We could replicate the finding of studies with non-clinical samples that insecure attachment mediates the relationship between CM and depressive symptoms in a sample of patients with acute or remitted MDD reporting on average mild to moderate depression severity. However, in contrast to most of the studies with non-clinical samples (Dion et al., 2019; Widom et al., 2018), in this study, not only anxiety but also avoidance in close relationships mediated the effect of CM on depressive symptoms. In addition, our findings indicate that, in particular, the effect of emotional abuse and emotional neglect on depression severity is mediated by attachment insecurity. We found two specific indirect effects: the effect of emotional abuse via anxiety in close relationships on depression severity and the effect of emotional neglect via avoidance in close relationships on depression severity. Moreover, our findings support the proposed sequential mediation model with attachment insecurity and poorer perceived social support as sequential mediators of the relationship between CM and depression severity.

4.2. Emotional neglect and emotional abuse as predictors of attachment insecurity and depression

The findings of this study indicate that relative to other types of CM, emotional maltreatment (abuse and neglect) in particular predicts insecure attachment. This is in accordance with theories highlighting the role of emotional maltreatment in causing insecure attachment (Riggs, 2010) and with empirical findings indicating that there is a particularly strong relationship between emotional maltreatment and insecure attachment when compared with other types of CM (Lowell et al., 2014; Muller et al., 2012). To our knowledge, the two specific indirect effects we found in our path model (1.: emotional abuse – anxiety – depression; 2.: emotional neglect – avoidance – depression) have not been shown this way before. One possible

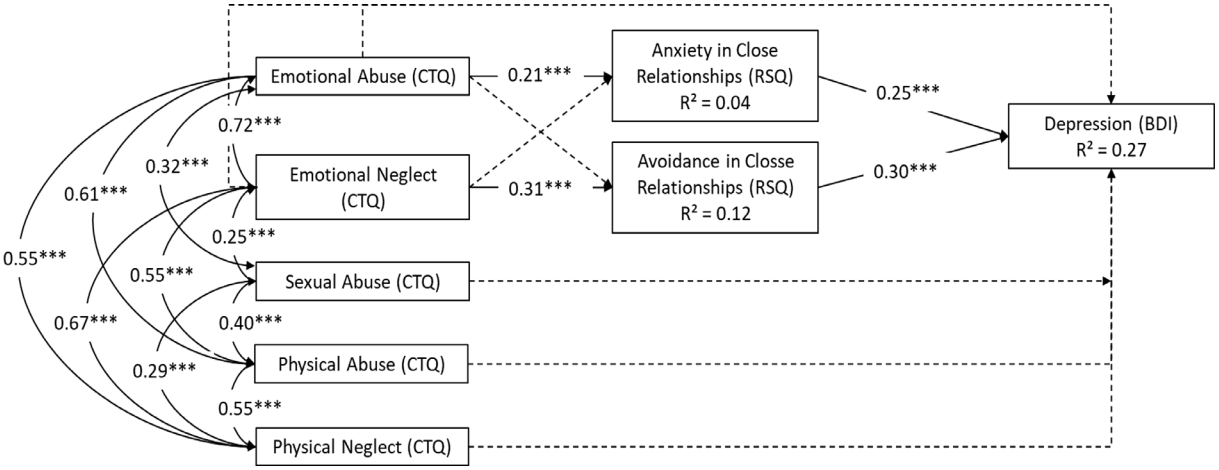

Fig. 3. Theoretical model of emotional abuse and emotional neglect as predictors of depression severity mediated by attachment types. Standardized coefficients are reported for each significant path. RSQ = Relationship Scales Questionnaire; CTQ = Childhood Trauma Questionnaire; BDI = Beck Depression Inventory. ***p < .001, ** p < .01, *p < .05.

explanation for these specific paths might be the degree of inconsistency and ambivalence in caregiving. Attachment theory holds that inconsistent responsiveness and availability of primary attachment figures results more likely in a negative working model of the self and in an anxious attachment style. In contrast, consistently unresponsive, rejecting or neglecting caregiving is associated with a negative working model of others and a more avoidant attachment style (Ainsworth, 1984; Mallinckrodt and Wei, 2005). Most of the items of the CTQ measuring emotional neglect are focusing more on enduring and general experiences of neglect (e.g. “I felt loved” (R)). In contrast, exposure to emotional abuse – as measured in the CTQ and controlled for the effects of emotional neglect – might occur more frequently in an ambivalent and inconsistent manner (e.g. “People in my family said hurtful or insulting things to me.”), alternating with phases of more responsive caregiving, therefore resulting in more anxious attachment in the child. Moreover, previous evidence suggests that avoidant attachment in mothers is associated with emotionally neglectful parenting (Strathearn, 2011) and that there exists an intergenerational transition of attachment via multiple pathways, as caregiver sensitivity, autonomy support (Verhage et al., 2016) and via changes in the oxytocinergic and dopaminergic system associated with attachment (Strathearn, 2011). However, the occurrence of emotional neglect and emotional abuse is highly correlated, so that the specific effects should be interpreted with caution. Yet, our findings support the assumption that attachment particularly mediates the effect of emotional maltreatment (neglect and abuse) on depression.

4.3. Sequential mediation with perceived social support

The finding of the current study supporting the hypothesized sequential model with attachment and perceived social support as mediators of the effect of CM on depression is consistent with assumptions of attachment theory and previous findings. According to attachment theory, attachment insecurity is associated with behaviors that inhibit positive social interactions and healthy adult relationships. Anxiously attached individuals are assumed to use more often hyperactivating strategies – as clinging and controlling behaviors or intense demands for attention – which hinder the formation of mature reciprocal relationships and cause chronic frustration and catastrophic appraisals of interpersonal conflicts (Mikulincer and Shaver, 2003). Avoidantly attached individuals are assumed to use deactivating strategies – as avoiding intimacy, interdependence, and self-disclosure – which are likely to lead to superficial relationships, unresolved conflicts and a higher likelihood of relationship dissolution (Mikulincer and Shaver, 2003). In sum, insecure individuals are more likely to experience dissatisfying social interactions (Klein et al., 2020) and diminished perceived social support which is in turn associated with higher experiences of distress (Vogel and Wei, 2005) and with higher symptom severity in patients with mental disorders (Cloitre et al., 2008; Hankin et al., 2005). Previous research also indicates that not only the objective social support of insecurely attached individuals is diminished but that these individuals’ subjective perception of social support is also negatively biased (Collins and Feeney, 2004). Further studies differentiating between objective measures of social support and perceived social support are therefore needed. Moreover, the causal direction of

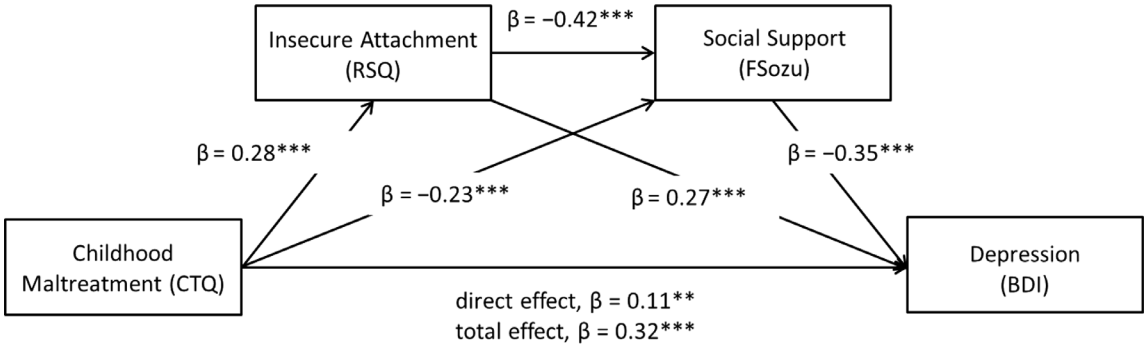

Fig. 4. Model of childhood maltreatment as a predictor of depression severity sequentially mediated by insecure attachment and perceived social support. Standardized coefficients are reported for each path. RSQ = Relationship Scales Questionnaire; CTQ = Childhood Trauma Questionnaire; BDI = Beck Depression Inventory. ***p < .001, **p < .01. *N* = 577.

the association between perceived social support and depression severity in our model is ambiguous. A bidirectional causality is supported by Coyne's interactional model (Coyne, 1976). He states that the interpersonal behavior of depressed people generally elicits rejection from others and that these experiences of rejection, in turn, increase depressive severity (Coyne, 1976). More longitudinal studies examining the causal directions are therefore needed.

4.4. Strengths and limitations

An important limitation of this study is the cross-sectional design. Although the hypothesized temporal sequence of exposure to CM, attachment and clinical outcome is theoretically plausible, a reverse order cannot be excluded: e.g. self-reports of attachment style can be also influenced by depression severity. Therefore, caution is advised when drawing conclusions about causality and more longitudinal studies are needed. Moreover, this study does not consider some characteristics of CM exposure – besides CM type – which might also influence outcomes or buffer negative effects of CM, e.g.: timing of exposure to CM, presence of other responsive primary attachment figures, and closeness in the family network of abusive caregivers (e.g. parent vs. teacher). Yet, the current study adds to previous work examining the mediational role of attachment for the effect of CM exposure on depression. We replicated the mediation in a large clinical sample with high variability in depression severity and in CM exposure. The lifetime depression diagnoses were verified with structured clinical diagnostic interviews. The large sample size allowed us to examine the specific effects of individual CM types and the sequential mediation model.

4.5. Practical implications

Previous research indicates that attachment insecurity may result in lower response to psychotherapy, which might be mediated by weaker therapeutic alliances (Diener and Monroe, 2011; Reiner et al., 2016). However, Bowlby stresses the changeability of internal working models, for instance through psychotherapy (Bowlby, 1988) which is supported by a meta-analysis, reporting significant increases in attachment security following psychotherapy (Taylor et al., 2015). Improving attachment security is an important goal of psychotherapy which psychotherapist might approach by providing a feeling of security and becoming a “secure base” for the patient. This focus on a secure therapeutic relationship might be particularly important for patients with insecure attachment styles and histories of emotional abuse or neglect. Some therapeutic approaches for chronic mental disorders – as Schema Therapy (Young et al., 2003), the Cognitive Behavioral Analysis System of Psychotherapy (CBASP) (McCullough, 2003), or Compassion Focused Therapy (CFT) (Gilbert, 2012) – explicitly focus on building a secure attachment by taking a distinctive therapeutic role. For instance, in Schema Therapy this role is referred to as “limited reparenting” and in CBASP as “disciplined personal involvement”, including e.g. self-disclosure, warmth and nurturance but also empathic confrontation and limit setting. In general, psychotherapy training programs, supervision, and treatment manuals could be strengthened by focusing also on contextual factors (Flückiger et al., 2012), including the therapeutic role.

Contributors

A.K., U.D., I.N., and T.K. designed work package 1 of the FOR 2107 project, in which this study is part of. N.S., A.K., and E.-L.B. formulated the research questions of this article. A.K., D.Y., F.S., S.S., T.M., K.B., U.D., I.N., S.M., N.O., H.L., L.W., and T.K. contributed to data collection. N.S. analyzed and interpreted data and wrote the first manuscript in collaboration with M.F. and E.-L.B.. A.K., D.Y., F.S., S.S., T.M., K.B., U.D., I.N., S.M., N.O., H.L., L.W., and T.K. critically revised the article. All authors have approved the submitted work.

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Data access and responsibility: All PIs take responsibility for the integrity of the respective study data and their components. All authors and coauthors had full access to all study data.

The funders had no involvement in study design, data collection, analysis and interpretation of results, writing of the manuscript, or the decision to submit the article for publication.

Ethics

The FOR2107 cohort project (WP1) was approved by the Ethics Committees of the Medical Faculties, University of Marburg (AZ: 07/14) and University of Münster (AZ: 2014-422-b-S).

Declaration of Competing Interest

T.K. received unrestricted educational grants from Servier, Janssen, Recordati, Aristo, Otsuka and Neuraxpharm. The authors declare no competing interests.

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Social cognition and interpersonal problems in persistent depressive disorder vs. episodic depression: the role of childhood maltreatment

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Abstract

Objective: Little is known about the specific psychological features that differentiate persistent depressive disorder (PDD) and episodic depression (ED). Thus, the present study aimed to investigate differences in social cognition and interpersonal problems between these two forms of depression and healthy controls. In addition, we aimed to examine childhood maltreatment (CM) as a possible origin of these alterations.

Methods: In a cross-sectional study, adult patients with a current PDD (n=34) or in a current episode of ED (n=38), and healthy controls (n=39) completed questionnaires about depression severity, empathy, interpersonal problems, and CM, as well as tests of affective theory of mind and facial emotion recognition.

Results: Patients with PDD reported higher empathic distress than patients with ED and healthy controls. Both depressive groups recognized angry faces with higher accuracy and reported more interpersonal problems, with no differences between PDD and ED. Empathic distress and interpersonal problems mediated the link between CM and depression in the combined sample.

Limitations: Patient groups were not drug-naïve and antidepressant intake might have influenced social-cognitive functions. Self-report measures of empathy and interpersonal problems are vulnerable to bias. The cross-sectional design does not allow causal conclusions.

Conclusion: Depressed patients may not show deficits in decoding the affective states of others and in feeling with others. However, depressed individuals - in particular patients with PDD - may feel easily overwhelmed by emotionally tense situations, resulting in empathic distress and avoidant/submissive interpersonal behavior. Exposure to CM might be an origin of alterations in social cognition and interpersonal problems.

Keywords: persistent depressive disorder; social cognition; interpersonal problems; childhood maltreatment; empathy

1. Introduction

According to the DSM-5 diagnostic criteria, a persistent depressive disorder (PDD) is characterized by symptoms of depressed mood for at least two years (American Psychiatric Association, 2013). Approximately 30% of depressed individuals develop a chronic course of the disorder, as defined by the PDD criteria (Murphy and Byrne, 2012). PDD is associated with an earlier age of onset, higher rates of comorbid mental and somatic disorders, more frequent suicide attempts, and higher treatment

resistance when compared with episodic depression (ED) (Köhler et al., 2019). Since approximately 75-80% of chronically depressed patients were exposed to at least moderate to severe childhood maltreatment (CM) (Brakemeier et al., 2015), exposure to abuse and neglect in childhood is assumed to be a major risk factor for the development of PDD. Previous research shows a dose-response relationship between CM and depression severity as well as an association between CM and chronicity of depression (Nelson et al., 2017). However, studies comparing the prevalence of CM in PDD and ED are rare and resulted in inconsistent findings (Brakemeier et al., 2018; Köhler et al., 2019; Van Randenborgh et al., 2012).

In his interpersonal model of chronic depression, James McCullough – founder of the Cognitive Analysis System of Psychotherapy (CBASP) – describes pervasive interpersonal fear-avoidance and a perceptual disconnection from the interpersonal environment as the core psychopathology of PDD patients (McCullough Jr et al., 2015). He argues that specific theory of mind and empathy deficits in chronically depressed patients are rooted in early adverse relational experiences (McCullough Jr., 2003). His model also proposes that the interpersonal fear-avoidance in patients with PDD is characterized by a hostile-submissive interpersonal style, developed as an adaptation to a hostile, abusive, and neglectful environment in childhood. This behavior, in turn, deprives them of positive interpersonal experiences which contributes to the development and maintenance of depressive symptoms. There is good evidence for the efficacy of CBASP in the treatment of PDD (Jobst et al., 2016; Negt et al., 2016) and it is widely used to treat chronic depression, however, there is a lack of studies that comprehensively examine the underlying theoretical model.

1.1. Social cognition in episodic and persistent depression

The term *theory of mind* (ToM) is defined as the cognitive ability to attribute mental states to oneself and others (Premack and Woodruff, 1978). While cognitive ToM refers to the attribution of thoughts and intention, affective ToM refers to the attribution of emotions (Shamay-Tsoory et al., 2007). The ToM concept is overlapping with the term *perspective-taking* which has been described as the capacity to understand others' viewpoints and to consider these viewpoints when solving interpersonal problems (Davis, 1983). *Empathy* is defined as a multidimensional construct (Davis, 1983): the cognitive dimension of empathy is mostly overlapping and interchangeably used with the affective ToM concept while the affective dimension can be defined as the degree to which someone responds emotionally to the feelings of another person (Schreiter et al., 2013). Affective empathy may elicit a) *empathic distress* which refers to aversive and self-oriented responses of personal anxiety and stress (Davis, 1983; Singer and Klimecki, 2014) or b) *empathic concern* which refers to other-oriented feelings of concern and warmth, facilitating pro-social behavior (Davis, 1983).

The most consistent finding in a review of empathy in adults with depressive symptoms was a link between depression and high levels of empathic distress (Schreiter et al., 2013). Results of another recent meta-analysis indicated that patients with depression show deficits in ToM and that the magnitude of these deficits is linked to depression severity (Bora and Berk, 2016). However, to our knowledge, only three studies to date have compared patients with PDD and ED in measures of empathy or ToM. Van Randenborgh et al. (2012) and Ladegaard et al. (2014) found no differences between patients with PDD and ED in self-report and objective measures of ToM. In the third study, patients with PDD reported more empathic distress than patients with ED and healthy controls (Domes et al., 2016). Depressed patients reported more difficulties in perspective-taking, with no differences between PDD and ED. No differences were found regarding empathic concern (Domes et al., 2016). Further studies are needed to clarify whether there are differences between ED and PDD in terms of empathy and ToM and, if so, in which specific domains they occur.

The ability to recognize emotions correctly is essential for positive interactions with others. Dalili et al. (2015) report in their meta-analysis impaired emotion recognition in patients with depression for all emotions except for sadness. Other studies indicate that depressed patients have a negative response bias or lack a positive response bias compared with healthy controls, in particular when ambiguous or neutral faces are presented (e.g. Bomfim et al., 2019; Bourke et al., 2010; Gollan et al., 2008; Münkler et al., 2015). This bias to misinterpret faces as negative could contribute to the development and maintenance of depressive symptoms. To our knowledge, no study so far has investigated differences between ED and PDD with regard to emotion recognition biases.

1.2. Interpersonal problems in episodic and persistent depression

According to the Interpersonal Circumplex Model (Kiesler, 1983), all interpersonal behavior can be classified in two-dimensional space on the axes *affiliation* and *dominance*. A recent meta-analysis supports McCullough's (2015) assumption of elevated submissiveness, hostility, and hostile-submissiveness in patients with PDD and, to a smaller degree, in patients with ED (Bird et al., 2018). However, to date, only very few studies directly compared the two patient groups. Constantino et al. found that patients with PDD and ED did not differ in submissiveness, friendly-submissiveness, or hostile-submissiveness, but did differ in levels of hostility (Constantino et al., 2008). A recent study also indicates higher levels of specific interpersonal skill deficits (peroperational thinking) in patients with PDD when compared with ED and an association between these deficits and depression severity over the course of two years (Sondermann et al., 2020).

1.3. Childhood maltreatment, social cognition, and interpersonal problems

CM has been consistently identified as a major risk factor for the development of lifetime diagnosis of major depression (Nelson et al., 2017) and, as described above, possible mediators of this relationship are differences in social cognition and interpersonal behavior (Liu, 2017; McCullough Jr., 2003).

A negative impact of CM on affective ToM performance has been shown in several samples, e.g. in a large online convenience sample (Germine et al., 2015), and in patients with borderline personality disorder (Petersen et al., 2016). Two recent studies investigated the link between CM and affective ToM in adult patients with depression (Rnic et al., 2018; Simon et al., 2019). Both studies found a link between emotional abuse and deficits in affective ToM. Regarding emotion recognition, previous studies suggest a general impairment in maltreated children (da Silva Ferreira et al., 2014). However, there is also evidence for a threat bias in abused children and young adults who recognized anger at a lower emotion intensity when compared with controls (Gibb et al., 2009; Pollak et al., 2009; Pollak and Tolley-Schell, 2003). There is a lack of studies investigating the relationship between CM and emotion recognition accuracy and biases in patients with depression (Rokita et al., 2018).

Previous research also suggests an association between CM and interpersonal problems (Christ et al., 2019; Huh et al., 2014; Paradis and Boucher, 2010) and a recent study indicates that interpersonal fears mediate the effect of CM on specific interpersonal skill deficits (Klein et al., 2020). However, most studies to date have used healthy college samples, so that more findings on the relationship between CM and interpersonal problems in patients with depression are needed.

1.4. Aims of the study

In the current study, we aim to test some of McCullough's theoretical views empirically. First, we aim to examine differences in social cognition between patients with PDD and ED and healthy controls. Based on the literature mentioned above, we expect impaired affective ToM abilities and higher levels of empathic distress a) in patients with PDD when compared with patients with ED and b) in both depressed groups when compared with healthy controls. We also hypothesize a negative emotion recognition bias in patients with depression. We expect that both patient groups recognize more sadness and anger and less happiness. Second, we aim to compare interpersonal problems between groups. Based on the previous research findings, we hypothesize a) higher levels of submissiveness in all patients with depression when compared with healthy controls and b) higher levels of hostile-submissiveness in patients with PDD when compared with patients with ED and healthy controls. Finally, we aim to investigate CM as a possible origin of these alterations. We expect higher levels of CM in individuals with PDD when compared with patients with ED and healthy controls. We hypothesize a link between CM and deficits in ToM, increased empathic distress, increased negative

emotion recognition bias, and increased interpersonal hostility and submissiveness in the combined sample. Finally, we will explore if social cognitive variables and interpersonal problems mediate the link between CM and depression severity in the combined sample.

2. Materials and Methods

2.1. Participants

The sample of the present cross-sectional study consisted of 111 individuals: 38 patients with an ED, 34 patients with a PDD, and 39 healthy control participants. The ethics committees of the Department of Medicine and the Department of Psychology at the University of Marburg approved the protocol. Patients were recruited from one outpatient and two inpatient facilities through invitations to participate (e.g. after psychoeducational lectures or via flyers). Healthy controls were recruited via advertisements in regional newspapers, notices in public places, and online advertisements. Participants received financial compensation. Written informed consent was obtained from all participants. General inclusion criteria were an age between 18 and 65 and adequate German language skills. The healthy control group additionally met the following criteria: no current mental disorder on the Structured Clinical Interview for DSM-IV Interview (SCID) (Wittchen et al., 1997) and no diagnosed mental disorder in the last 10 years according to self-report. Patients were included if they met either criteria for a current major depressive disorder (duration < 24 months, ED group) or criteria for a current persistent depressive disorder (duration >= 24 months, PDD group) according to DSM-5 criteria (American Psychiatric Association, 2013). This was assessed by SCID interviews and an additional interview using a life chart covering the last 24 months (based on Klein et al., 2018). Participants were excluded if they met any of the following criteria: acute suicidality, a diagnosis of schizophrenia or bipolar disorder, dementia, or severe cognitive impairments. A total of 119 participants were assessed for eligibility of which eight were excluded: five patients because they no longer met criteria for a current episode of ED or PDD and three patients because of missing data/ incomplete study participation, resulting in the final sample of N = 111. Due to difficulties in data collection, emotion recognition data was missing from seven of the subjects. After screening for outliers of the emotion recognition data, two healthy subjects were excluded for the emotion recognition analyses because of strong evidence of careless responding. Further individual outliers were considered valid answers and therefore not excluded. This resulted in a reduced sample of 102 individuals for the emotion recognition analyses (35 ED, 30 PDD, 37 HC).

The demographic and clinical characteristics of the three groups are presented in **Table 1**. Briefly, groups did not differ with respect to age, gender, and years of education. When comparing patients with ED and PDD, there were no significant differences with respect to the age of onset, number of

inpatient and outpatient treatments, and the use of antidepressants. The three groups differed with regard to depression severity, with the highest scores in the PDD group, followed by the ED group, and the lowest scores in the healthy control group. Repeating the comparison of demographic and clinical characteristics between groups in the reduced sample for the emotion recognition analyses yielded in the same results, with the exception that the ED and PDD group differed in the use of antidepressants, with significantly higher use in the PDD group (ED = 51.4%, PDD = 76.7%).

The 34 patients with PDD had the following subtypes of PDD: *n* = 1 (2,9%) with pure dysthymic syndrome; *n* = 15 (44,1%) with persistent major depressive episode; *n* = 16 (47.1%) with intermittent major depressive episode, with current episode; n = 2 (5,9%) with intermittent depressive episode, without current episode.

2.2. Measures

2.2.1. Beck Depression Inventory-II (BDI-II)

The severity of depressive symptoms was measured by self-report using the Beck Depression Inventory, assessing depressive symptoms in the last two weeks with 21 Items (BDI-II, Beck et al., 1996; German version: Hautzinger et al., 2006). The internal consistency of the BDI-II was between α = .84 and α = .90 in a previous study (Kühner et al., 2007).

2.2.2. Childhood Trauma Questionnaire (CTQ)

CM was assessed by retrospective self-report with the 28-item version of the Childhood Trauma Questionnaire (CTQ-SF; Bernstein et al., 2003, German version: Wingenfeld et al., 2010). The CTQ measures five types of CM: emotional abuse (α = .87), physical abuse (α = .83), sexual abuse (α = .96), emotional neglect (α = .89), and physical neglect (α = .61, all α in this sample). The response options range from 1 (= *never true*) to 5 (= *very often true*).

2.2.3. Interpersonal Reactivity Index (IRI)

A shortened and validated German version of the interpersonal reactivity index (IRI) self-report survey was used to measure dispositional empathic traits in four subscales (Davis, 1980; German version: Paulus, 2009). The *perspective-taking* subscale assesses spontaneous attempts to adopt the perspectives of other people and see things from their point of view (α = .78); the *empathic concern* subscale assesses feelings of warmth, compassion, and concern for others when confronted with negative experiences of others (α = .76); the *personal distress* subscale (synonym for *empathic distress*) measures personal feelings of anxiety and discomfort resulting from observing another's negative experiences (α = .78); and the *fantasy* subscale assesses the tendency to identify with characters in

movies, novels, plays and other fictional situations (α = .73, all α in this sample) (Davis, 1980). The shortened German version consists of 4 items per scale (Paulus, 2009).

2.2.4. Reading the Mind in the Eyes Test (RMET)

The revised version of the Reading the Mind in the Eyes Test (RMET) was used to measure affective ToM (Baron-Cohen et al., 2001). In this test, subjects are presented with 36 black-and-white photographs only showing the eye region of faces. Four attributes (e.g. serious, ashamed, alarmed, and bewildered) are displayed around the eyes and subjects are asked to choose the word that matches the person's mental state best. The total number of errors was counted, as well as separate error sums for pictures with positive valence (9 items), negative valence (12 items), and neutral valence (15 items) based on a valence analysis by Kometer et al. (2012).

2.2.5. Facial Expression Recognition Task (FERT)

Emotion recognition was assessed with the facial expression recognition task previously described (Harmer et al., 2009). For this task, pictures of facial expressions presenting the six basic emotions happiness, sadness, fear, anger, surprise, and disgust were taken from the Ekman and Friesen Pictures of Affect Series (Ekman and Friesen, 1976) and were morphed between each prototype (100%) and neutral (0%) in 10% steps. A total of 250 stimuli were presented: four examples of each emotion at each intensity and 10 neutral faces. Each stimulus was presented for 500ms and then replaced by a blank screen. Subjects were asked to give their response as quickly and accurately as possible by pressing one of the seven labelled keys on a response box.

2.2.6. Inventory of Interpersonal Problems (IIP)

The German short version of the Inventory of Interpersonal Problems (IIP) was used to assess self-reported interpersonal problems in 32-items (Horowitz et al., 2016). The scale is based on the Interpersonal Circumplex Model which describes all interpersonal behavior in a two-dimensional space along the two main axes *affiliation* and *dominance* (Kiesler, 1983). The IIP measures eight domains of interpersonal problems: behavior that is overly, 1. domineering/controlling (PA), 2. vindictive/self-centered (BC), 3. cold/distant (DE), 4. socially inhibited/avoidant (FG), 5. nonassertive (HI), 6. accommodating/exploitable (JK), 7. self-sacrificing/nurturant (LM), 8. intrusive/needy (NO). The dimension cold/distant (DE) corresponds to hostile interpersonal behavior, socially inhibited/avoidant (FG) to hostile-submissive, and nonassertive (HI) to submissive behavior in McCullough's model (2003). The German version of the IIP-32 has shown good psychometric properties (Thomas et al., 2011). In the current sample, Cronbach's alpha of the total IIP score was .90, alphas of the relevant scales ranged from .69 (JK) to .82 (FG).

2.3. Statistical Analyses

Statistical Analyses were conducted using IBM SPSS Statistics 22.0. Scale means were calculated if at least 75% of the items were answered. Group differences regarding demographic and clinical characteristics, social cognitive variables, interpersonal problems, and CM were assessed using one-way independent analyses of variance (ANOVA). Welch-Tests were applied in case of unequal variances. Post-hoc tests were Bonferroni-corrected for multiple comparisons. To test the hypothesized socio-developmental origin of differences in social cognition and interpersonal behaviors, associations between CM and ToM, empathy, interpersonal problems, and depression were explored with partial correlations controlled for age and gender. Next, to examine the hypothesized mediation with CM as the independent variable, social-cognitive variables as mediators and depression severity as dependent variable, a mediation analysis using the PROCESS Macro (Hayes, 2017; Model 4) for SPSS was performed. Only socio-cognitive variables related to CM and depression in the correlational analyses were included as mediators (explorative selection of relevant mediators). To test the statistical significance of the indirect effects, we used bias-corrected 95% bootstrap confidence intervals based on 5000 bootstrap samples.

3. Results

3.1. Between-group differences in social cognition

The statistics and effect sizes of the comparison of empathy, ToM, emotion recognition accuracy, and interpersonal problems between groups are presented in **Table 2**.

Regarding empathic distress, groups differed significantly. Bonferroni-corrected post-hoc tests revealed that patients with PDD reported significantly more empathic distress compared to healthy controls and patients with ED. The difference between healthy controls and patients with ED was also statistically significant. Regarding empathic concern, groups also differed significantly. Patients with PDD and ED reported significantly more empathic concern compared with healthy controls, with no significant difference between patients with PDD and ED. Regarding perspective-taking, groups also differed significantly. Patients with ED reported significantly less perspective-taking when compared with healthy controls. There were no differences in reported perspective-taking between patients with PDD when compared with healthy controls or patients with ED. The three groups did not differ with respect to RMET errors (see **Table 2**). Even when the valences (positive, negative, neutral) were considered separately, there were no significant differences between patients with ED, PDD, and healthy controls in any valence of the RMET (see **supplementary material S1**).

Patients with ED and PDD recognized angry emotional expressions with higher accuracy than healthy controls. The diagnostic groups did not differ in the recognition of happiness, sadness, and global emotion recognition. These results did not change when we included the use of antidepressants as a covariate. Further analyses of differences in accuracy and reaction times for recognition of all facial expressions are presented in the **supplementary material S2**.

3.2. Between-group differences in interpersonal problems

Regarding interpersonal problems, there were significant differences between groups (see **Table 2**). With respect to the IIP total score and all examined subscales, patients with ED and PDD reported significantly more interpersonal problems when compared with healthy controls. Patients with ED and PDD did not differ significantly in any of the examined subscales or the total IIP. See **supplementary material (S1)** for IIP subscales not considered in our hypothesis.

3.3. Between-group differences in childhood maltreatment

The statistics and effect sizes of the prevalence of different types of CM in the three groups are presented in **Table 3**. The groups differed in the CTQ total score and all subscales of the CTQ. Patients with PDD reported more CM of all types when compared with healthy controls. They also reported more emotional abuse, physical abuse, and higher total CM than patients with ED. Patients with ED reported increased levels of emotional abuse, emotional neglect, and total CM when compared with healthy controls.

3.4. Associations between CM, social cognition, and interpersonal problems and test of mediation

Partial correlations between CM, empathy variables, emotion recognition accuracy, interpersonal problems, and depression severity, controlled for age and gender in the full sample are presented in **Table 4**. CM was positively correlated with depression severity with large effect size and with empathic distress and interpersonal problems with medium to large effect size. There was a small to medium negative correlation between CM and the recognition of happiness, which can be interpreted as a trend ($p = .055$). Depression severity correlated with large effect size positively with empathic distress and interpersonal problems, with medium to large effect size positively with empathic concern, and with small to medium effect size positively with the recognition accuracy of anger. Bivariate correlations are presented in **supplementary material S3** and partial correlation between CM and different facets of interpersonal problems in **supplementary material S4.** CM correlated with all subscales of the IIP, apart from too domineering/controlling and too vindictive/self-centered interpersonal behavior. CM was most strongly associated with socially inhibited/avoidant behavior ($r = .41$, $p < .001$).

Based on these correlational findings, we examined a mediational model with empathic distress and interpersonal problems as mediators of the link between CM and depression severity in the combined sample. Results provided support for the mediation model (**Fig. 1**). There were significant indirect effects of CM on depression via interpersonal problems, β = 0.17, 95% CI [0.09, 0.26] and via personal distress, β = 0.16, 95% CI [0.06, 0.27]. The direct effect of CM on depression remained significant after including the mediators, β = 0.17, *p* = .01, supporting a partial mediation model.

4. Discussion

4.1. Social cognition in episodic and persistent depression

The first aim of the current study was to compare social cognition in patients with PDD, ED, and in healthy controls. As hypothesized, we found increased empathic distress in patients with PDD, followed by patients with ED and healthy controls. Interestingly, we also found increased empathic concern in both depressive groups. However, in contrast to our hypothesis, there were no differences in affective ToM between groups. In parts we could confirm the assumption of a negative emotion recognition bias in depression: both patient groups recognized anger with higher accuracy; however, this was not the case for sadness and the two patient groups did not differ in the recognition of anger, sadness, or happiness.

Interestingly, our results indicate that depressed patients do not show deficits in decoding the affective states of others but that they have difficulties in handling another person's negative emotional state or suffering and might be overwhelmed by emotionally tense situations resulting in empathic distress. This feeling of empathic distress might be even more pronounced in patients with PDD compared with ED, which is in accordance with a previous study by Domes et al. (2016). In fact, the higher empathic concern in the depressive groups and the correlation of empathic concern with depression severity also suggest that depressed patients might be even hypersensitive to the feelings of others which is in line with some previous findings and theories (Gambin and Sharp, 2018; Tone and Tully, 2014; however see also Schreiter et al., 2013). Recent findings suggest that deficits in emotion regulation (Powell, 2018), high levels of alexithymia (Banzhaf et al., 2018), and generalized guilt and shame (Gambin and Sharp, 2018) in depressed patients might result in high levels of affective empathy no longer having a protective effect. Under these conditions, high levels of affective empathy might even lead to a feeling of being overwhelmed and trigger empathic distress and depressive symptoms. More research on mechanisms and moderators regarding the relationship between affective empathy, emotional contagion, empathic distress, and depression is therefore needed.

Contrary to our hypothesis, we did not find any differences in affective ToM (as measured by the RMET) between groups, in neither of the depressive groups and for no valence. It is unlikely that this was due

to low statistical power, as the effect sizes were small and contrary to our hypothesis (lowest error score in the PDD group) and we found no correlation between RMET errors and depression severity. Previous research comparing depressed patients with healthy controls in the RMET has been very inconsistent (e.g. Kettle et al., 2008; Nejati et al., 2012; Szily and Kéri, 2009; Wolkenstein et al., 2011). One possible explanation is that the depressive groups in the various studies differed in clinical or demographic variables. More moderator analyses are needed to explain the inconsistencies. It is also possible that the RMET is not sensitive enough to reliably detect a potential negative recognition bias. It should be noted, that the RMET is not a typical ToM test and has also been labelled as emotion recognition task instead (Oakley et al., 2016). In contrast to the RMET results, we were able to show a negative recognition bias in the analyses of the emotion recognition data measured with the FERT which uses morphed images and thus has a variation in the emotional intensity of displayed facial expressions. In line with some previous findings (Bomfim et al., 2019; however, see also Dalili et al., 2015), patients with depression recognized anger with higher accuracy compared with healthy controls. Surprisingly, we found no bias in the recognition of sadness and no deficits in the recognition of facial expression with positive valence as in previous studies (Bomfim et al., 2019; Münkler et al., 2015). However, particularly with regard to the emotion recognition data, we need to discuss the statistical power to detect small effects (see below).

4.2. Interpersonal problems in episodic and persistent depression

Our second aim was to compare interpersonal problems in patients with ED, PDD, and in healthy controls. We hypothesized a) higher levels of submissiveness in all patients with depression when compared with healthy controls and b) higher levels of hostile-submissiveness in patients with PDD when compared with patients with ED and healthy controls. Our results confirmed the first part of the hypothesis as both patient groups reported more interpersonal problems resulting from submissive behavior compared with the healthy control group. The effect size was medium for the ED group and large for the PDD group. This is in line with previous findings (Bird et al., 2018). However, the second part of the hypothesis could not be confirmed: patients with PDD did not report significantly more interpersonal problems resulting from hostile-submissive behavior than patients with ED. At a descriptive level, there was a trend for the PDD group to report more interpersonal problems, and the subscale on which the two depressive groups differed the most was the subscale of problems resulting from submissive behavior (non-significant, but medium effect size). This trend indicates that this difference between ED and PDD might be significant when replicated in a larger sample (see limitations).

Interestingly, interpersonal problems corresponding to hostile and submissive behavior were strongly correlated with empathic distress, while there was no association with affective ToM and emotion

recognition abilities. Based on these findings we argue that the experience of empathic distress could strengthen fears of interaction with others and might lead to a more avoidant interpersonal style, while deficits and biases in decoding emotions might play a less prominent role in the development of interpersonal problems than previously assumed. The causal relationship between empathic distress and interpersonal problems could also be bidirectional, in the form that a lack of interpersonal skills leads to a faster overload in difficult situations resulting in empathic distress.

4.3. Childhood maltreatment as an origin of alteration in social cognition and interpersonal problems

Our third aim was to examine CM as a possible origin of these alterations and to test a mediation model with CM as independent variable, social cognition and interpersonal problems as mediators, and depressive symptoms as outcome. Patients with PDD reported more CM of all types when compared with healthy controls, and more physical abuse, emotional abuse, and higher general CM levels when compared with patients with ED. As hypothesized, CM was associated with increased depression severity, empathic distress, and interpersonal problems. However, there was no association with affective ToM abilities. At a trend level, CM was negatively associated with the recognition of happiness in faces. Results of the hypothesized mediation model suggest that interpersonal problems and empathic distress mediate the link between CM and depression.

Our findings suggest that the alterations in empathy and interpersonal problems in depressed patients might be partially rooted in a history of exposure to CM. It has been argued that CM can lead to changes in social cognition in two ways: a) via a lack of learning and developmental opportunities due to a lack of positive stimulation (neglect) and b) via a sensitization to threat-relevant stimuli as an adaptation to the repeated exposure to threat (abuse) (McLaughlin et al., 2014).

Consistent with earlier findings in non-clinical samples (Christ et al., 2019; Paradis and Boucher, 2010), CM was linked with interpersonal problems and empathic distress, and the association between CM and depression severity was mediated by interpersonal problems and empathic distress. This finding also supports McCullough's theoretical model (2003), proposing that depressed patients who were exposed to histories of CM show pervasive interpersonal fear-avoidance resulting in dysfunctional interpersonal behavior. Possibly, those interpersonal problems lead to higher depression severity via lower perceived social support and weaker social ties (Santini et al., 2015; Struck et al., 2020). However, contrary to our hypothesis, CM and depression severity were not associated with general deficits in affective ToM. Taken together, CM was not associated with difficulties in decoding affective states of others, but with a feeling of being overwhelmed by negative affective states of others.

4.4. Limitations

Some limitations of the current study should be noted. First, we used self-report measures of empathic abilities and interpersonal problems which might be state-dependent and biased by social desirability. It has also been argued, that socio-cognitive deficits in depressed patients might not be detectable with laboratory tests because they are comparable with daily interpersonal interactions in which the participant is directly and actively involved (Wilbertz et al., 2010). Therefore, further studies should develop and use more objective and behavioral measures with participants ideally being actively involved themselves. Another limitation is that our depressed sample was diverse regarding the intake of antidepressants with differences between the ED and PDD groups. Previous studies showed that antidepressant administration might ameliorate the negative emotion recognition bias (Harmer et al., 2009) and reduce emotional contagion when confronted with the pain of others (Rütgen et al., 2019). Thus, the effects of antidepressants could have led to an underestimation of the differences between groups regarding biases in emotion recognition and empathic distress. However, controlling for the use of antidepressants in our emotion recognition analyses did not change the results. More studies investigating social cognition in drug naïve samples are needed. A further limitation is the cross-sectional design of the study which does not allow to draw causal conclusions. Although the hypothesized temporal sequence of exposure to CM, social cognitive functioning/ interpersonal problems, and clinical outcome in the mediation model is theoretically plausible, a reverse order cannot be excluded: e.g. symptoms of depression could influence interpersonal submissiveness or empathic distress. Therefore, the mediation analysis should be interpreted with caution and more longitudinal studies are needed. As the RMET only measures a small facet of ToM, overlapping with the concept of emotion recognition, further studies should include more tests covering other aspects of ToM, e.g. also the cognitive dimension. Limitations regarding the statistical power to detect small effect sizes - especially regarding expected small biases in facial emotion recognition and regarding the differences between ED and PDD in interpersonal problems - should also be mentioned. We must, therefore, be careful with statements regarding effects that we have not been able to show in this study.

4.5. Practical Implications

Applying these results to the treatment of depression in general and of PDD in particular, emphasizes the importance of practical interpersonal skill training, as implemented e.g. in CBASP situational analyses using role plays. As depressed patients appear to have no deficits in “feeling with” others (rather may even do so more strongly) but to deal with their own feelings resulting from this, our findings also suggest a therapeutic focus on emotion regulation abilities. A focus on emotion regulation abilities corresponds to psychotherapeutic strategies in the Dialectic Behavior Therapy (DBT; Linehan,

2018) for the treatment of Borderline Personality Disorders, another disorder characterized by a very high prevalence of histories of CM exposure (Brakemeier et al., 2018). Once more, the results of this study highlight the outstanding importance of efforts to prevent CM and programs to support maltreated children and adolescence to reduce further consequences as the risk of chronic mental illness.

Table 1
Demographic and clinical characteristics of the sample.

	HC (*n* = 39)		ED (*n* = 38)		PDD (*n* = 34)		Test statistic	*p*
Characteristic	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* / *t* / χ^2	
Age	39.92	14.93	41.63	12.76	44.85	12.98	[a] 1.21	0.30
% Female	53.8 %		50.0 %		55.9 %		[b] 0.26	0.88
Years of education	14.26	2.23	13.53	2.09	13.50	2.36	[a] 1.41	0.25
% Married/ in partnership	30.8 %		52.6 %		44.1 %		[b] 3.83	0.15
Age of onset	–	–	30.45	14.55	25.21	14.35	[c] 1.52	0.13
Number outpatient treatments	–	–	1.87	3.84	4.26	9.46	[c] −1.44	0.16
Number inpatient treatments	–	–	1.61	1.64	1.65	1.48	[c] −0.11	0.91
% Antidepressants	–		55.3 %		76.5 %		[b] 3.56	0.06
Depression (BDI–II)	3.95	4.23	25.95	12.68	33.79	13.54	[d] 116.25	**<0.001**

*Note*s. CTQ = Childhood Trauma Questionnaire; HC = healthy control group; ED = episodic depression; PDD = persistent depressive disorder; BDI-II = Beck Depression Inventory; [a] = ANOVA; [b] = Chi-Square Test; [c] = t-Test; [d] = Welch-ANOVA

Table 2
Comparison of social cognition and interpersonal problems between groups.

	Group							Effect size		
	HC (*n* = 39)		ED (*n* = 38)		PDD (*n* = 34)		Test statistic $F_{2,108}$	HC vs ED *d*	HC vs PDD *d*	ED vs PDD d
Characteristic	*M*	*SD*	*M*	*SD*	*M*	*SD*				
Empathy (IRI)										
Empathic Concern	3.39	0.79	3.84	0.64	3.93	0.56	6.851**	0.63*	0.79**	0.15
Perspective Taking	3.79	0.73	3.32	0.74	3.51	0.74	3.881*	−0.64*	−0.38	0.26
Empathic Distress	2.30	0.61	3.15	0.66	3.56	0.85	30.347***	1.34***	1.70***	0.54*
Affective ToM (RMET)										
Total Error	12.69	4.61	12.68	5.06	11.74	3.54	0.534	< 0.01	−0.23	−0.22
Emotion Recognition Accuracy (FERT) [a]										
Anger [a]	50.95	19.16	61.64	11.61	60.17	9.26	[c] 4.31*	0.67**	0.61*	−0.14
Sadness [a]	56.35	17.03	58.64	16.60	61.92	12.61	1.04	0.14	0.37	0.22
Happiness [a]	78.78	7.85	76.64	8.11	77.50	8.20	0.65	−0.27	−0.16	0.11
Global [a]	56.58	10.53	58.70	8.29	59.00	5.29	[c] 0.75	0.22	0.29	0.04
Interpersonal Problems (IIP)										
IIP−total [b]	1.20	0.50	1.90	0.44	2.07	0.41	37.231***	1.49***	1.90***	0.40
Hostile/DE	0.76	0.75	1.61	0.85	1.75	0.83	16.491***	1.06***	1.25***	0.17
Hostile−submis./FG	1.12	0.80	2.12	0.72	2.45	1.04	[c] 24.318***	1.31***	1.43***	0.37
Submissive/HI	1.71	0.86	2.24	0.80	2.72	0.97	12.099***	0.64*	1.10***	0.54
Friendly−submis./JK	1.75	0.82	2.49	0.79	2.71	0.77	14.937***	0.92***	1.21***	0.28

Notes. CTQ = Childhood Trauma Questionnaire; HC = healthy control group; ED = episodic depression; PDD = persistent depressive disorder; IRI = Interpersonal Reactivity Index; RMET = Reading the Mind in the Eyes Test ; FERT = Facial Expression Recognition Task ; IIP = Inventory of Interpersonal Problems; DE = cold/distant; FG = socially inhibited; HI = nonassertive; JK = accommodating; [a] *N* = 102 (HC *n* = 37, ED *n* = 35, PDD *n* = 30), [b] *n* = 107, [c] Welch−ANOVA; Bonferroni Pos−hoc Tests for all comparisons; * p < .05, ** p < .01, *** p < .001

Table 3
Comparison of self-reported childhood maltreatment between groups.

	Group							Effect size		
	HC (*n* = 39)		ED (*n* = 38)		PDD (*n* = 34)		Test statistic	HC vs ED	HC vs PDD	ED vs PDD
Characteristic	*M*	*SD*	*M*	*SD*	*M*	*SD*	$F_{2,108}$	*d*	*d*	d
CTQ total score	34.97	9.77	43.6	11.9	53.2	19.7	[a] 14.43***	0.79*	1.17***	0.59*
Emotional abuse	7.56	2.82	10.7	4.86	13.7	5.45	[a] 19.96***	0.81**	1.42***	0.57*
Physical abuse	5.90	2.10	6.47	2.24	9.21	4.92	[a] 6.61**	0.26	0.88***	0.72**
Sexual abuse	5.26	0.79	5.63	1.58	7.35	5.34	[a] 3.23*	0.30	0.55*	0.44
Emotional	9.77	4.63	12.8	4.75	14.0	5.21	[b] 7.60**	0.65*	0.86**	0.24
Physical neglect	6.49	1.89	7.95	3.24	8.97	3.76	[a] 7.45**	0.55	0.83**	0.29

Notes. CTQ = Childhood Trauma Questionnaire; M = mean; SD = standard deviation; HC = healthy control group; ED = episodic depression; PDD = persistent depressive disorder; [a] = Welch-ANOVA; [b] = ANOVA; Bonferroni Post-hoc Tests; * p < .05, ** p < .01, *** p < .001.

Table 4
Partial correlations between childhood maltreatment, social cognitive variables, interpersonal problems, and depression, controlled for age and gender.

Variable	1	2	3	4	5	6	7	8	9	10
1. Childhood Maltreatment	1									
2. Empathic Concern	.18	1								
3. Perspective Taking	−.17	.28**	1							
4. Empathic Distress	.45***	.24*	−.20*	1						
5. RMET errors	−.08	−.13	−.06	−.02	1					
6. Anger accuracy [a]	.11	.12	−.11	.17	−.16	1				
7. Happiness accuracy [a]	−.20 †	−.07	.03	−.26**	−.21*	.13	1			
8. Sadness accuracy [a]	.14	.03	.06	.07	−.25*	.29**	.19	1		
9. FERT global accuracy [a]	.02	.18	.11	.05	−.34**	.65***	.37***	.60***		
10. Interpersonal Problems [b]	.43***	.21*	−.33**	.75***	.03	.11	−.14	.12	−.01	1
11. Depression	.52***	.35***	−.18	.73***	−.02	.22*	−.12	.19	.11	.75***

Notes. RMET = Reading the Mind in the Eyes Test; FERT = Facial Expression Recognition Task; † p < .06, * p < .05, ** p < .01, *** p < .001.

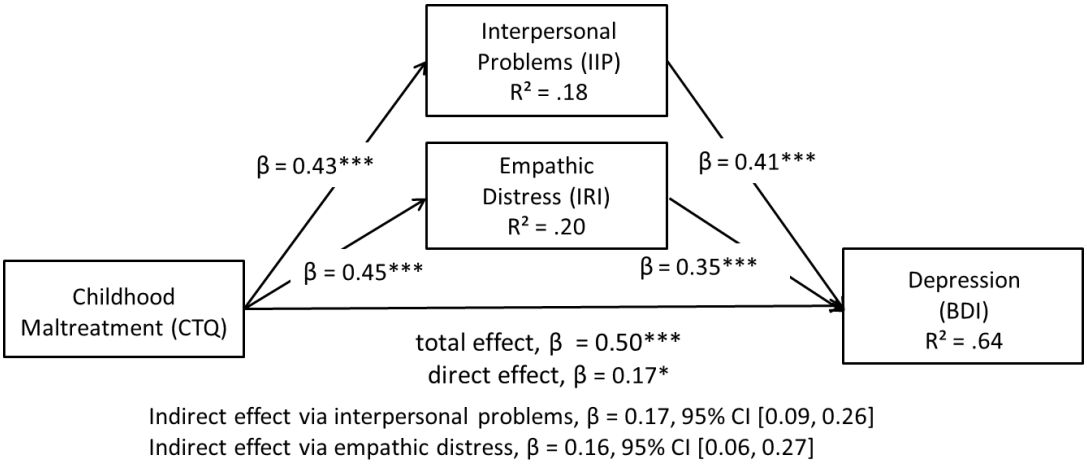

Fig. 1. Model of childhood maltreatment as a predictor of depression severity mediated by interpersonal problems and empathic distress in the combined sample. Standardized coefficients are reported for each path. * $p < 0.05$, ***$p < 0.001$.

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Conflict of interest

The authors have no competing interests to declare.

Author Contribution

NS and E-LB planned the study. NS conducted the statistical analyses and drafted the manuscript. NS, TG, TK, and E-LB all contributed to organizing data collection, providing feedback, and revising the manuscript. All authors read and approved the final manuscript.

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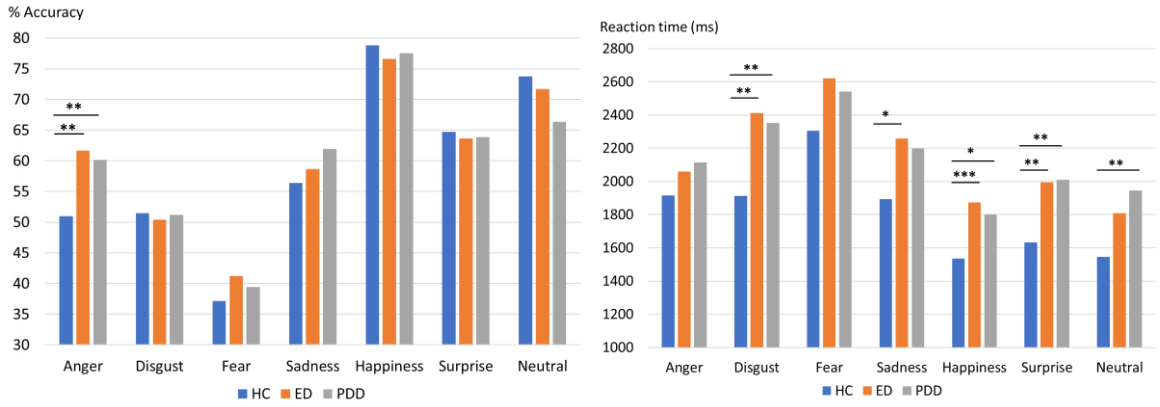
Supplementary Material

S1 Table
Comparison of social cognition and interpersonal problems between groups – additional subscales.

	Group							Effect size		
	HC (*n* = 39)		ED (*n* = 38)		PDD (*n* = 34)		Test statistic $F_{2,108}$	HC vs ED *d*	HC vs PDD *d*	ED vs PDD d
Characteristic	*M*	*SD*	*M*	*SD*	*M*	*SD*				
Empathy (IRI)										
Fantasy	3.13	0.88	3.06	0.79	2.92	0.77	0.61	−0.08	−0.25	−0.18
Affective ToM (RMET)										
Positive	2.85	1.65	3.21	1.63	2.71	1.45	0.99	0.22	−0.09	−0.32
Negative	4.92	2.14	4.24	1.98	4.24	2.13	1.37	−0.33	−0.32	0
Neutral	4.87	2.33	5.39	1.99	4.79	1.86	0.92	0.24	0.04	−0.31
Emotion Recognition Accuracy (FERT) [a]										
Disgust [a]	51.49	20.97	50.43	16.16	51.17	18.80	0.03	−0.06	−0.02	0.04
Fear [a]	37.16	20.06	41.21	12.52	39.42	20.14	0.54[c]	0.24	0.11	−0.11
Surprise [a]	64.73	10.44	63.64	10.90	63.83	8.09	0.12	−0.10	−0.10	0.02
Neutral [a]	73.78	16.05	71.71	16.54	66.33	22.97	1.40	−0.13	−0.38	−0.27
Interpersonal Problems (IIP)										
PA/ domineering	0.68	0.56	1.23	0.77	1.02	0.69	6.17**	0.82**	0.54	−0.29
BC/ vindictive	0.88	0.66	1.12	0.65	1.14	0.72	1.69	0.37	0.38	0.03
LM/ self-sacrificing	1.56	0.87	2.41	0.84	2.68	0.77	17.95***	0.99***	1.36***	0.34
NO/ intrusive	1.18	0.78	1.97	0.74	2.04	0.78	14.29***	1.04***	1.10***	0.09

Notes. CTQ = Childhood Trauma Questionnaire; HC = healthy control group; ED = episodic depression; PDD = persistent depressive disorder; IRI = Interpersonal Reactivity Index; FERT = Facial Expression Task; IIP = Inventory of Interpersonal Problems; [a] *N* = 102 (HC *n* = 37, ED *n* = 35, PDD *n* = 30), [b] *n* = 107, [c] Welch−ANOVA; Bonferroni Pos−hoc Tests for all comparisons; * p < .05, ** p < .01, *** p < .001



S2 Figure. Recognition accuracy (left) and reaction times (right) for the six facial expressions of emotion and neutralexpressions in healthy controls (HC) and patients with episodic depression (ED) and persistent depressive disorder (PDD).

Table S3
Bivariate correlations between childhood maltreatment, social cognitive variables, interpersonal problems, and depression.

Variable	1	2	3	4	5	6	7	8	9	10
1. Childhood Maltreatment	1									
2. Empathic Concern	.25**	1								
3. Perspective Taking	−.20*	.23*	1							
4. Empathic Distress	.46***	.28**	−.22*	1						
5. RMET errors	−.07	−.12	−.04	−.05	1					
6. Anger accuracy [a]	.08	.12	−.07	.18	−.24*	1				
7. Happiness accuracy [a]	−.19†	−.04	.03	−19†	−.26**	.19†	1			
8. Sadness accuracy [a]	.10	.00	.08	.07	−.31**	.35***	.21*	1		
9. FERT global accuracy [a]	−.03	.13	.12	.07	−.43***	.69***	.41***	.64***	1	
10. Interpersonal Problems [b]	.43***	.22*	−.33**	.76***	.03	.11	−.12	.11	<.01	1
11. Depression	.54***	.38***	−.20*	.74***	−.09	.25*	−.06	.20*	.15	.74***

Notes. RMET = Reading the Mind in the Eyes Test; FERT = Facial Expression Recognition Task; † p < .06, * p < .05, ** p < .01, *** p < .001.

Table S4

Partial correlations between childhood maltreatment and different facets of interpersonal problems, controlled for age and gender.

Variable	1	2	3	4	5	6	7	8
1. Childhood Maltreatment	1							
2. Domineering/ controlling (PA)	.16	1						
3. Vindictive/ self-centered (BC)	.09	.39***	1					
4. Cold/distant (DE)	.32**	.31**	.58***	1				
5. Socially inhibited/ avoidant (FG)	.41***	.26**	.47***	.75***	1			
6. Nonassertive (HI)	.28**	.00	.20*	.37***	.59***	1		
7. Accomodating/ exploitable (JK)	.32**	.04	.16	.34***	.59***	.77***	1	
8. Self-sacrificing/ nurturant (LM)	.35***	.23*	.10	.24*	.46***	.48***	.58***	1
9. Intrusive/ needy (NO)	.31**	.44***	.25**	.26**	.33**	.21*	.33**	.63***

Notes. * p < .05, ** p < .01, *** p < .001.

Interpersonal problems, empathic distress, self-compassion, and emotion regulation in persistent depressive disorder: the role of childhood maltreatment

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Running head: Psychological mechanisms linking childhood maltreatment and depression

Abstract

Background: Childhood maltreatment (CM) has been identified as a salient risk factor for depression and, in particular, for persistent depressive disorder (PDD). However, the psychological mechanisms of this association remain poorly understood. Therefore, this study examines four potential mechanism variables: interpersonal problems, empathic distress, emotion regulation, and self-compassion.

Methods: Patients with a PDD (*N*=96) completed self-report measures at the beginning and end of a six-week inpatient treatment. A path model with CM types as predictors of the potential mechanism variables was calculated. Mediational models were tested with the potential mediators. Correlations between change scores were examined.

Results: At the beginning of treatment, emotional abuse predicted decreased self-compassion and increased interpersonal problems. Results supported the hypothesized sequential indirect effect of emotional abuse via decreased self-compassion and emotion regulation difficulties on depression and the indirect effect of emotional abuse via interpersonal problems on depression. Changes in depression severity over the treatment were correlated with changes in interpersonal problems, changes in self-compassion, and changes in emotion regulation.

Conclusions: Difficulties in interpersonal problems, self-compassion, and emotion regulation appear to play an important role in PDD and to be related to emotional abuse in childhood. These mechanisms are promising targets for the treatment of patients with PDD.

Keywords: childhood maltreatment; persistent depressive disorder; emotion regulation; self-compassion; interpersonal problems; empathic distress; emotional abuse

1. Introduction

Awareness is growing that childhood maltreatment (CM) is a widely spread and massive problem with long-lasting consequences for mental health. A large number of retrospective and prospective studies have shown that CM is an important risk factor for the development of depression (Li, D'Arcy, & Meng, 2016; Nelson, Klumparendt, Doebler, & Ehring, 2017). Previous findings also suggest that CM is associated with a younger age of onset, higher symptom severity, and a more frequent chronic course of depressive symptoms (Nelson et al., 2017). Approximately 57% percent of patients with episodic depression (ED) and 75% percent of patients with a persistent depressive disorder (PDD) were exposed to CM in a recent study (Struck et al., 2020a).

Five types of CM are commonly distinguished: emotional abuse, emotional neglect, sexual abuse, physical abuse, and physical neglect (Leeb, Paulozzi, Melanson, Simon, & Arias, 2008). While earlier studies almost exclusively examined the consequences of sexual and physical abuse, today increasingly more attention is given to the important role of emotional abuse and emotional neglect. For example, previous research suggests that emotional abuse and neglect are most strongly associated with the onset and severity of depression (Humphreys et al., 2020; Infurna et al., 2016).

Despite consistent findings indicating an association between CM and depression, the psychological mechanisms of this link are still under debate. Research on these mechanisms is clinically important, as it could help to prevent the development of depression and to improve tailoring therapies to the individual needs of patients. Thus, this study investigates four potential psychological mechanism variables: (1) interpersonal problems, (2) empathic distress, (3) emotion regulation difficulties, and (4) reduced self-compassion. These variables were chosen based on clinical theories and previous empirical evidence pointing to an association with CM and depression which are described in the following paragraphs.

1.1. Interpersonal problems

James McCullough – founder of the Cognitive Analysis System of Psychotherapy (CBASP) – proposes that the interpersonal behavior of patients with PDD is characterized by a hostile-submissive style, which contributes to the development and maintenance of depressive symptoms (McCullough Jr, 2003). He describes a pervasive interpersonal fear-avoidance and a disconnection from the interpersonal environment in patients with PDD, which is rooted in an abusive or neglectful environment in childhood (McCullough Jr, Schramm, & Penberthy, 2015).

The link between CM and interpersonal problems has been shown in previous research. In a sample of outpatients with depression and anxiety disorders Huh et al. (2014) found that in particular emotional abuse, emotional neglect, and sexual abuse were positively related to interpersonal problems. Christ

et al. (2019) examined emotional, physical, and sexual abuse in a college sample and found that only emotional abuse was independently associated with interpersonal problems. In contrast, Paradis and Boucher (2010) found that also physical abuse as well as emotional abuse and neglect were related to interpersonal difficulties in couple relationships. In sum, there is good evidence of an association between CM and interpersonal problems, but findings on specific CM types have been inconsistent.

A recent meta-analysis by Bird et al. (2018) supports McCullough's (2015) assumption of elevated hostile and submissive interpersonal behavior in patients with PDD and, to a smaller degree, in patients with episodic depression. Psychotherapy approaches focusing on interpersonal problems – as e.g. CBASP (McCullough, 2003) and Interpersonal Therapy (IPT; Klerman & Weissman, 1994) – have also shown to be effective in reducing depressive symptoms (for reviews, see Feijo De Mello, De Jesus Mari, Bacaltchuk, Verdeli, & Neugebauer, 2005; Negt et al., 2016).

1.2. Empathic distress

Empathy can be defined as a multidimensional construct (Davis, 1983): while cognitive empathy refers to cognitive reactions (e.g. reasoning about other peoples' emotional states), affective empathy describes an emotional response to the feelings of another person. Affective empathy may elicit a) empathic distress, which refers to self-oriented and aversive responses of stress and personal anxiety, or b) empathic concern, which refers to other-oriented feelings of concern and warmth, facilitating pro-social behavior (Davis, 1983; Singer and Klimecki, 2014).

Several developmental theories describe a link between parenting and the development of empathy. Findings indicate that parental warmth, synchronicity, and sensitivity to the child's emotions are related to the development of empathy (Mcdonald & Messinger, 2011). However, empirical studies investigating empathy in individuals with a history of CM are still very limited and results have been inconsistent (Greenberg, Baron-Cohen, Rosenberg, Fonagy, & Rentfrow, 2018; Guhn, Merkel, Hübner, Dziobek, & Sterzer, 2020; Locher, Barenblatt, Fourie, Stein, & Gobodo-Madikizela, 2014). Two previous studies indicate higher levels of empathic distress in persons with a history of CM (Locher et al., 2014; Struck et al., 2020b).

In a meta-analysis examining empathy in depression, the most consistent finding was the association between depression and increased levels of empathic distress (Schreiter, Pijnenborg, & Aan Het Rot, 2013). Two recent studies comparing patients with PDD, ED, and healthy controls also found that both patient groups reported elevated empathic distress but no differences in cognitive empathy (Guhn et al., 2020; Struck et al., 2020b). These results suggest that patients with depression easily feel overwhelmed when confronted with negative feelings of other people. This could contribute to the avoidant and submissive (socially inhibited) interpersonal behavior of depressed individuals described

above. A recent study of our group also suggests that both interpersonal problems and empathic distress significantly mediate the effect of CM on depression severity (Struck et al., 2020b).

1.3. Difficulties in emotion regulation

Emotion regulation has been described as the "processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (Thompson, 1994). Most current definitions highlight the importance of awareness and understanding, as well as acceptance of emotions (Gratz & Roemer, 2004).

The development of emotion regulation skills in childhood is strongly influenced by parenting practices, the parents as models, and the emotional climate within the family (Morris, Silk, Steinberg, Myers, & Robinson, 2007). CM interferes with this acquisition of appropriate emotion regulation skills (Dvir, Ford, Hill, & Frazier, 2014; Weissman et al., 2019). Previous findings also indicate that, in particular, emotional abuse is related to difficulties in emotion regulation (Christ et al., 2019; Huh, Kim, Lee, & Chae, 2017; O'Mahen, Karl, Moberly, & Fedock, 2015; Racine & Wildes, 2015), with some studies also indicating a relationship with emotional neglect (Huh et al., 2017; O'Mahen et al., 2015).

Emotion regulation is assumed to be an important mechanism linking CM and various mental disorders (Dvir et al., 2014; Heleniak, Jenness, Vander Stoep, McCauley, & McLaughlin, 2016). In numerous studies, deficits in emotion regulation were linked to the development and maintenance of various forms of psychopathology (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Berking & Wupperman, 2012), and also specifically with depression (Joormann & Stanton, 2016). Two cross-sectional studies in clinical samples indicate that deficits in emotion regulation mediate the association between CM and depression severity as well as chronicity (Hopfinger, Berking, Bockting, & Ebert, 2016; Huh et al., 2017). Moreover, a study examining changes in various skills through inpatient treatment found that changes in emotion regulation were associated with the improvement of depressive symptoms (Fehlinger, Stumpenhorst, Stenzel, & Rief, 2013).

1.4. Self-compassion

In recent years, the concepts of self-compassion, self-criticism, and shame have increasingly received attention in clinical research and practice (Gilbert & Procter, 2006; Neff, 2003). Self-compassion has been defined as a kind, supportive, and caring attitude towards oneself, in particular in the face of own failures and pain (Neff, 2003). Neff (2003) describes the three domains of *self-kindness*, *common humanity*, and *mindfulness* as components of the self-compassion construct.

It is theorized that individuals who are raised in secure, supportive, and emotionally warm families should be more able to be compassionate towards themselves, while those raised in insecure,

neglectful, or threatening environments should relate to themselves more critically and coldly (Gilbert & Procter, 2006; Neff & McGehee, 2010). These assumptions are supported by empirical research: two recent studies found that, in particular, emotional abuse and emotional neglect were associated with adult depressive symptoms through decreased self-compassion (Ross, Kaminski, & Herrington, 2019; Wu, Chi, Lin, & Du, 2018). In addition, another study found that only emotional abuse was associated independently with decreased self-compassion (Tanaka, Wekerle, Schmuck, & Paglia-Boak, 2011).

Decreased self-compassion has also been consistently linked with higher levels of depression in student and community samples as well as in some clinical samples (Diedrich, Burger, Kirchner, & Berking, 2017; Ehret, Joormann, & Berking, 2015; MacBeth & Gumley, 2012), with longitudinal evidence suggesting that low self-compassion posits a vulnerability factor for depression (Krieger, Berger, & Holtforth, 2016). Intervention programs which focus on fostering compassion and self-compassion – such as the Compassion Focused Therapy (CFT) (Gilbert, 2009) and the Mindful Self-Compassion (MSC) program (Neff & Germer, 2013) – have also shown to be effective in reducing depressive symptoms (for reviews, see Ferrari et al., 2019; Kirby, 2017).

1.5. Relationship between self-compassion and emotion regulation

Recent theories and studies also examined the relationship between self-compassion and emotion regulation in relation to CM and psychopathology. A vicious circle has been described, in which highly self-critical persons devaluate themselves for their difficulties in emotion regulation and see this as a personal failure, which in turn, intensifies the negative emotions as well as the difficulties in regulating them (Diedrich et al., 2017). Previous empirical findings also indicate that a) CM leads to more emotion regulation difficulties via lower self-compassion (Reffi, Boykin, & Orcutt, 2019; Vettese, Dyer, Li, & Wekerle, 2011) and b) low self-compassion leads to higher psychopathology via emotion regulation difficulties (Diedrich et al., 2017; Inwood & Ferrari, 2018). Combining these results yields an indirect path of CM on depression severity first via lower self-compassion, than via emotion regulation difficulties.

1.6. Aims of this study

As described above, clinical theories and previous research suggest that alterations in interpersonal problems, empathic distress, emotion regulation, and self-compassion are potential psychological mechanisms linking CM and depression and, therefore, may be promising treatment targets. However, there are few and partly inconsistent findings examining associations between specific CM types and specific psychological mechanism variables in depression, and it is unclear which of these potential psychological mechanisms are particularly strongly related to depression severity in patients with PDD.

Therefore, the following hypotheses will be tested in the current study based on the reported study results: First, we hypothesize that CM predicts higher emotional dysregulation, lower self-compassion, higher empathic distress, and more interpersonal problems at the beginning of treatment. We hypothesize that specifically emotional abuse and emotional neglect are associated with these psychological mechanism variables. Second, we hypothesize a sequential indirect path of CM via self-compassion and emotion regulation difficulties on depression severity at the beginning of treatment and indirect paths of CM via empathic distress and via interpersonal problems on depression severity. Third, we hypothesize that changes in emotion regulation, empathic distress, interpersonal problems, and self-compassion are related to changes in depression severity. We will explore which changes in the potential psychological mechanisms are particularly closely related to changes in depressive symptoms.

2. Method

2.1. Participants and procedures

Data for these analyses were drawn from the *CBASPersonalized Project*, an ongoing open and uncontrolled treatment study examining the effectiveness of an inpatient treatment concept with online continuation-treatment for PDD (Clinicaltrials.gov Identifier NCT03616665). Inclusion criteria were an age between 18 and 80, sufficient German language skills, and a current primary diagnosis of PDD, confirmed with the Structured Clinical Interview for DSM IV (Wittchen, Wunderlich, Gruschwitz, & Zaudig, 1997). A further inclusion criterion were early adverse experiences with significant others of at least one type, screened with the childhood trauma screener (CTS) (Glaesmer et al., 2013). A low threshold for the CTS was chosen to achieve a higher sensitivity: at least ‘often true’ for the physical neglect item, at least ‘sometimes true’ for the emotional neglect and emotional abuse items, and at least ‘rarely true’ for the sexual and physical abuse items. To enhance the external validity of the study, we included patients with comorbid disorders, except for patients who met criteria of a lifetime diagnosis of Schizophrenia, schizotypal or antisocial personality disorder, and for patients who were not capable of alcohol and illegal substance abstinence during inpatient treatment. *N*=96 participants were diagnosed with a PDD and met the other inclusion criteria. 70% of the participants were female and 30% male. They were 18 – 62 years old, with an average age of 42.5 years (SD=12.8). Of the participants, 3.2% had no degree, 11.9% a lower secondary degree, 37.7% a middle secondary degree, 26.9% a higher secondary degree, and 20.4% a university degree. 13.3% were currently undergoing training/studies, 15.6 % were currently unemployed, 40.0% were working full-time, 16.7% part-time, and 14.4% were retired. 30.1% of the participants lived alone, 47.3% with a partner, and 22.7% in some other form of cohabitation, while 47.4% had children. 69.8% of the participants reported an age of onset before the age of 21 years and 73.4% of participants took psychotropic medication.

The present study was approved by the ethics committee of the University of Marburg. All patients gave written informed consent. A detailed description of the research procedure and therapy protocol of the ongoing treatment study is presented elsewhere (Hof & Brakemeier, 2020). In brief, patients with a PDD were invited to voluntarily participate in the current study at the beginning of their inpatient treatment in the psychosomatic clinic. The standard duration of the inpatient treatment was six weeks, with possible extensions of one (for 31% of the participants) or two (2%) weeks. For the current study, questionnaires completed by participants in the first week and at the end of the inpatient treatment were used. The inpatient treatment program included single and group psychotherapy, group interpersonal mindfulness and relaxation sessions, and a sports program for all patients, as well as physiotherapy, medical treatment, social counseling, creative therapies, and additional supportive meetings if needed. The main focus of the intervention was based on the CBASP approach (McCullough Jr, 2003). Tailored to the individual needs and comorbidities of patients, the treatment additionally included elements of Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 2009), exposure techniques to reduce anxiety, exposure and rescripting techniques to reduce posttraumatic stress symptoms (Schmucker & Köster, 2014), interventions to improve self-care, and interventions to improve distress tolerance skills based on the Dialectic Behavioral Therapy (DBT; Linehan, 2018).

2.2. Measures

The Beck Depression Inventory was used to measure the severity of depressive symptoms in the last two weeks at the beginning and end of treatment by self-report (BDI-II, Beck et al., 1996; German version: Hautzinger et al., 2006). The internal consistency of the BDI-II was $\alpha = .85$/ $\alpha = .93$ (pre-/ post-treatment) in this sample.

CM and CM types were assessed with the 28-item version of the Childhood Trauma Questionnaire (CTQ-SF; Bernstein et al., 2003; German version: Wingenfeld et al., 2010) at the beginning of treatment. The widely used retrospective self-report instrument measures five types of CM: emotional abuse ($\alpha = .78$), physical abuse ($\alpha = .80$), sexual abuse ($\alpha = .92$), emotional neglect ($\alpha = .89$), and physical neglect ($\alpha = .69$, all α in this sample).

Empathic distress was measured with a shortened and validated German version of the interpersonal reactivity index (IRI) questionnaire at the beginning and end of treatment (Paulus, 2009). The *personal distress* subscale (synonym for empathic distress) of the IRI measures personal feelings of anxiety and discomfort resulting from observing another's negative experiences ($\alpha = .69$). The shortened German version of the IRI consists of 4 items per scale.

Interpersonal problems were assessed with the German short version (32-items) of the Inventory of Interpersonal Problems (IIP; Horowitz, Strauß, Thomas, & Kordy, 2016) at the beginning and end of treatment. The scale is based on the Interpersonal Circumplex Model by Kiesler (1983) which describes interpersonal behavior in a two-dimensional space along the axes affiliation and dominance. The IIP sum score as well as eight separate domains of interpersonal problems can be interpreted. In this study, the sum-score (α = .77/ α = .84) as well as the subscale measuring *socially inhibited/avoidant* (FG) interpersonal behavior (α = .81/ α = .81, pre/post in this sample) will be used, as this subscale corresponds to hostile-submissive behavior in McCullough's model (2003).

Self-compassion was measured with the German version of the Self-Compassion Scale (SCS-D) (Neff, 2003; German version: Hupfeld & Ruffieux, 2011) at the beginning and end of treatment. The widely used self-report scale assesses in 26-items the domains of *self-kindness*, *self-judgment*, *common humanity*, *isolation*, *mindfulness*, and *over-identification*. A sum score (α = .90/ α = .94, pre/post in this sample) can be calculated and is used in this study, with higher values indicating a higher degree of self-compassion.

Self-reported emotion regulation difficulties were assessed with the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004; German version: Ehring, Fischer, Schnülle, Bösterling, & Tuschen-Caffier, 2008) at the beginning and end of treatment. The scale measures with 36 items the domains *nonacceptance of emotional responses*, *difficulties engaging in goal-directed behavior*, *impulse control difficulties*, *lack of emotional awareness*, *limited access to emotion regulation strategies,* and *lack of emotional clarity*. A sum score can be calculated (α = .91/ α = .95, pre/post in this sample) and is used in this study, with higher values indicating a higher degree of difficulties in emotion regulation.

2.3. Statistical analyses

Scale means were calculated if at least 75% of the items were answered. First, bivariate Pearson correlations were calculated for the variables of interest with SPSS 25.0. Next, to examine specific associations between the five CM types and the four potential psychological mechanism variables, a path model was calculated with SPSS AMOS 25 (Arbuckle, 2017). The five CM types were included as independent variables and emotion regulation difficulties, empathic distress, self-compassion, and interpersonal problems as dependent variables; No path was restricted (Fig. 1). The hypothesized sequential mediation model including self-compassion and emotion regulation as mediators (Fig. 2) and the single mediator models including empathic distress and interpersonal problems (Fig.3) were tested using the PROCESS Macro for SPSS (Hayes, 2017). To test the statistical significance of the indirect effects, we used bias-corrected 95% bootstrap confidence intervals based on 5000 bootstrap samples. Subsequently, we analyzed bivariate correlations between pre-post treatment change scores

of depression severity and the psychological mechanism variables. We computed pre-post effect sizes using the statistical programming language R and the package effectsize (Ben-Shachar, Makowski, & Lüdecke, 2020). We additionally computed last observation carried forward (LOCF) effect sizes as a more conservative estimate under the assumption that values missing at posttreatment did not change. Finally, we tested bootstrapped hierarchical regression analyses with the depression pre-scores and the change scores of self-compassion and emotion regulation difficulties as predictors for the change in depression severity using the package apaTables (Stanley, 2018) with listwise deletion and 1000 bootstrap samples. We decided to include only these two mechanism variables in the combined regression, as the theoretical concept of emotion regulation is partly overlapping with the concept of self-compassion (Diedrich, Grant, Hofmann, Hiller, & Berking, 2014), and the theoretical concept of empathic distress is closely related to emotion regulation (Eisenberg & Eggum, 2009). Due to the limited power to detect small effects given the sample size, we decided to include only the two psychological mechanism variables – one with an intrapersonal focus, and one with an interpersonal focus – with the lowest theoretically expected overlap.

3. Results

3.1. Descriptive analyses and bivariate correlations

85.9 % of the participants reported that they had experienced at least moderate to severe CM in at least one CM type, according to the cut-off values established by Bernstein et al. (2003). Of the participants, 51.0 % reported exposure to at least moderate to severe emotional abuse, 67.7 % to emotional neglect, 15.6 % to sexual abuse, 22.9% to physical abuse, and 37.5% to physical neglect. Two or more types of CM were reported by 55.4% of the sample: of these 21.7% had experienced two CM types, 17.4% three types, 12.0% four types, and 4.3% all five types.

Table 1 presents the means and standard deviations of the variables, as well as zero-order correlations among the variables of interest in this study. The BDI scores pre-treatment ranged from 14 to 54 with a mean score of 32.13 (*SD*=9.14) indicating a severe depression severity. The BDI scores post-treatment ranged from 1 to 48 with a mean score of 20.58 (*SD*=11.55) indicating a moderate depression severity. The zero-order correlation between the CTQ total score and pre-treatment depression severity was non-significant (*r*=.11, *p*=.339). Also, none of the separate CM types correlated significantly with depression (pre-treatment). All CM types, except for sexual abuse with emotional abuse and emotional neglect, correlated positively with each other. Depression severity (pre-treatment) was positively correlated with interpersonal problems with a large effect size (*r*=.50, *p*<.001), positively correlated with empathic distress with a medium effect size (*r*=.35, *p*=.003), negatively correlated with self-compassion with a medium effect size (*r*=-.37, *p*=.001), and positively correlated with difficulties in emotion regulation with a large effect size (*r*=.50, *p*<.001).

3.2. Path model

Fig. 1 shows the saturated path model with the CM types as predictors of the psychological constructs examined. Only significant paths are presented. Interpersonal problems were predicted by emotional abuse (β=.27, *p*=.021). Also, self-compassion was negatively predicted by emotional abuse (β=-.45, *p*<.001). Higher levels of sexual abuse predicted fewer deficits in emotion regulation (β=-.24, *p*=.028).

3.3. Sequential mediation model and single mediator models

Fig. 2 shows the sequential mediation model with emotional abuse as independent variable, self-compassion as the first mediator, emotion regulation difficulties as the subsequent mediator, and depression severity as dependent variable. There was a significant indirect path of emotional abuse via self-compassion and emotion regulation difficulties on depression severity, β=0.14, 95% CI [0.04, 0.27]. The total effect of emotional abuse on depression was not significant, β=0.08, 95% CI [-0.07, 0.22].

Fig. 3 depicts the mediation model with interpersonal problems as mediator of the effect of emotional abuse on depression severity. There was a significant indirect path of emotional abuse via interpersonal problems on depression severity, β = 0.12, 95% CI [0.04, 0.19]. The indirect effect of emotional abuse via empathic distress on depression severity was not significant, β = 0.07, 95% CI [-0.002, 0.20]

3.4. Correlation and regression analyses with change variables

Table 2 presents the bivariate Pearson correlations between the pre-post change scores of depression severity and the mechanism variables as well as the pre-post effect sizes of the change in depression and in the examined mechanism variables. Except for the change in empathic distress, all change scores of the mechanism variables were significantly associated with the change in depression severity, with moderate effect sizes. Pre-post changes were large for depression, medium for interpersonal problems, self-compassion, and emotion regulation, and small for empathic distress.

Table 3 presents hierarchical regression analyses, with the depression pre-score, the self-compassion change score, and the interpersonal problems change-score as predictors for changes in depression severity (included *n*=57). Both, changes in self-compassion (β=-.29, *p*=.021) as well as changes in interpersonal problems (β=.29, *p*=.020), predicted changes in depression severity when they were individually included in the regression (in addition to the BDI pre-score). There was no significant increase in the explained variance of the depression change score, when both mechanism variables were included concurrently as predictors in the regression (step three), indicating that the two variables mostly share their explained variance.

4. Discussion

The first aim of this study was to examine the relationship between the five CM types and interpersonal problems, empathic distress, emotion regulation difficulties, and self-compassion. When all CM types were included concurrently in one model, emotional abuse predicted reduced self-compassion and increased interpersonal problems and, unexpectedly, sexual abuse predicted reduced emotion regulation difficulties. The associations between emotional abuse and reduced self-compassion as well as increased interpersonal problems are in line with previous studies (Christ et al., 2019; Ross et al., 2019; Tanaka et al., 2011; Wu et al., 2018). These results highlight the long-lasting negative effects of emotional abuse, firstly on the self-image and how people treat themselves, and secondly on how they interact with other people. In contrast, the association between sexual abuse and less emotion regulation difficulties is contradictory to previous findings (Oshri, Sutton, Clay-Warner, & Miller, 2015; Séguin-Lemire, Hébert, Cossette, & Langevin, 2017) and should be interpreted with caution. Likely, the small number of participants reporting sexual abuse in our sample (*n*=15) has led to a reduced variance which might have generated biases in the results. Possibly, patients reporting severe sexual abuse and emotion dysregulation were more frequently assigned to the PTBS wards in the clinic. Contrary to our hypotheses, none of the CM types predicted emotion regulation difficulties or empathic distress. However, as described below (third study aim), emotion regulation difficulties were indirectly associated with emotional abuse via reduced self-compassion. The bivariate correlations of empathic distress with emotional abuse and physical abuse suggest a relationship between empathic distress and CM, but probably of smaller effect size and maybe also indirect via other mechanism variables (e.g. as a consequence of emotion regulation difficulties (Eisenberg & Eggum, 2009)). Exploratory, we have also examined the interpersonal problem subtype of *socially inhibited/avoidant* (FG) interpersonal behavior – which corresponds to hostile-submissive behavior in the McCullough's model (2003) (based on the circumplex model by Kiesler, 1983). Socially inhibited/avoidant behavior was associated with emotional abuse as well as both types of neglect, which corresponds to McCullough's model of PDD. McCullough Jr et al. propose (2015) that psychological insults, psychological-emotional trauma, and neglect in childhood result in children and adolescences interpersonally retreating and developing a rigid, passive, and avoidant interpersonal style, to protect themselves from harm and to avoid fear.

The second aim of the study was to test the hypothesized indirect effects of emotional abuse on depression via interpersonal problems, empathic distress, self-compassion, and emotion regulation at the beginning of treatment. All four mechanism variables were associated with depression severity with at least medium (self-compassion, empathic distress) or large (emotion regulation, interpersonal problems) effect sizes. The results supported the hypothesized sequential indirect effect of emotional

abuse, first via reduced self-compassion and then via increased emotion regulation difficulties, on depression severity (Fig. 2). In addition, results indicate that interpersonal problems also mediate the association between emotional abuse and depression (Fig. 3), while empathic distress was not a significant mediator. Regarding the direct effect of CM on depression severity, our results did not replicate the direct association between CM or CM types and depression severity, found in previous studies (Humphreys et al., 2020; Nelson et al., 2017). This might be due to the selective sample of our study: we only included patients who met PDD criteria and who reported CM in a screening, and generally, only patients with high symptom severity are admitted to the acute care clinic. These restrictions of range might have led to a diminished correlation between CM/emotional maltreatment and depression severity. However, a significant total effect is no longer seen as a prerequisite for indirect effects, according to more recent approaches to mediation analysis (Hayes, 2009). The indirect path of emotional abuse via self-compassion and emotion regulation is in line with previous studies and theories (Diedrich et al., 2017; Reffi et al., 2019; Vettese et al., 2011). Self-compassion may facilitate emotion regulation and thereby attenuate depressive symptoms (Inwood & Ferrari, 2018). In contrast, strong self-criticism may lead to a vicious circle in which negative emotions and emotion regulation difficulties are enhanced by harsh and self-devaluating reactions to them (Diedrich et al., 2014). These results suggest that fostering self-compassion may be a promising target to diminish the link between CM and later emotion regulation difficulties and depression. The indirect effect of emotional abuse via interpersonal problem on depression severity is also in line with McCullough's theory of chronic depression (McCullough, 2003): the avoidant/submissive interpersonal style developed in an abusive environment in childhood may lead to more interpersonal problems, which in turn, contributes to the development and maintenance of depressive symptoms. This result suggests that reducing interpersonal fears and fostering social competence are promising targets to diminish the link between CM and later depression.

The third aim of the study was to explore which changes in the psychological mechanism variables predicted changes in depression severity. Over the inpatient treatment, patients' interpersonal problems and emotion regulation difficulties decreased, and self-compassion increased. These changes in interpersonal problems, self-compassion, and emotion-regulation difficulties were related to pre-post treatment changes in depression severity. The changes in self-compassion and interpersonal problems both predicted the depression changes when controlled for pre-treatment depression. However, the concurrent inclusion of both mechanism variables did not increase the explained variance of the depression change. A plausible explanation is that they shared mostly the same variance. Previous research also suggests a sequential effect of the examined mechanisms, in a way that low self-compassion might lead to higher behavioral avoidance in social situations (Krieger,

Altenstein, Baettig, Doerig, & Holtforth, 2013). Current research and theories also focus on the interpersonal facet of emotion regulation (e.g. the use of others for soothing or as a model for coping with a difficult situation), highlighting overlaps between social support, social competencies, and emotion regulation (Hofmann, 2014; Hofmann, Carpenter, & Curtiss, 2016). More research and longitudinal studies are needed, to uncover the possible interactions and sequential effects the potential mechanism variables have on each other. However, our results indicate that the *intra*personal and *inter*personal mechanism examined in this study, both play an important role in the maintenance and alleviation of symptoms in PDD.

4.1. Limitations

The results should be considered in light of several limitations. First, the reliance on self-report measures is a limitation, as they are susceptible to recall biases and response biases. Furthermore, the path and mediational analyses are based on cross-sectional data. Therefore, they do not allow inference about causality. Future research with prospective designs or with longitudinal designs with more points of measurement is needed to clarify causality. Moreover, due to the absence of a control group, changes cannot be specifically attributed to the treatment. The analysis of correlations between change scores does not allow to uncover mechanisms of change in psychotherapy. Rather, this study should be seen as a first step to uncover correlations between symptom improvements, potential mechanism variables, and CM in patients with PDD. Further studies should use an individual dynamic network approach to measure underlying mechanisms of change in psychotherapy (Hofmann, Curtis & Hayes, 2020) and examine CM as a potential moderator. In addition, the following sample characteristics should be considered: First, the number of patients reporting sexual abuse was low, so that the correlations between sexual abuse and the mechanism variables should be interpreted with caution. Second, the sample was selective, as generally only patients with a high symptom severity are admitted to the acute care clinic and participants were screened for adverse experiences in childhood as an inclusion criterion. Therefore, correlations might be diminished due to restrictions of range. Finally, although theory-driven, the selection of mechanism variables is most likely not exhaustive. Other mediators, as the attributional style (Klumparendt, Nelson, Barenbrügge, & Ehring, 2019) or attachment (Struck et al., 2020c), have also been previously proposed as potential mediators and should be included in future studies.

4.2. Practical implications

The findings highlight the role of CM and, in particular, of emotional abuse in patients with PDD. Experiences of CM as well as important transdiagnostic processes, as interpersonal problems, self-compassion, and emotion regulation should be assessed as a standard procedure at the beginning of treatment so that the treatment can be tailored to the individual needs of the patient. The mechanism

variables examined are promising treatment targets for patients with PDD which are already specifically addressed in some therapy approaches. For example, the CBASP approach focuses on reducing interpersonal fears and replacing it with felt interpersonal safety and fostering felt empowerment in interpersonal situations e.g. by strengthening interpersonal skills (McCullough Jr et al., 2015). Our results suggest that this focus on interpersonal fears and problems might be of particular importance for patients with PDD who have experienced emotional abuse in childhood. At the same time, our results indicate that more intrapersonal mechanisms, as emotion regulation and self-compassion, are important treatment targets in these patients, as well. This result suggests that it might be useful to also address these problems in the treatment of patients with PDD and to include treatment methods to foster self-compassion and emotion regulation when needed. Effective methods already exist, as e.g. Compassion Focused Therapy (Gilbert, 2010) to foster self-compassion, Acceptance and Commitment Therapy (Hayes et al., 2009) or Dialectical Behavior Therapy (Linehan, 2018) to foster emotion regulation.

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Table 1

Means, standard deviations, and bivariate correlations between childhood maltreatment, depression, and mechanism variables at the beginning of treatment

Variable	*M*	*SD*	*N*	1	2	3	4	5	6	7	8	9	10	11
1. CTQ total	53.84	14.34	92	1										
2. Emotional abuse	13.80	5.10	96	.75***	1									
3. Emotional neglect	16.73	4.75	95	.77***	.41***	1								
4. Sexual abuse	6.30	3.05	93	.45***	.12	.20	1							
5. Physical abuse	7.82	3.85	96	.70***	.45***	.34**	.21*	1						
6. Physical neglect	8.99	3.60	96	.76***	.35***	.59***	.30**	.41***	1					
7. Depression (BDI-II)	32.13	9.14	87	.11	.19	.04	-.08	.11	.08	1				
8. Interpersonal problems	65.34	12.83	88	.18	.25*	.17	-.07	.03	.18	.50***	1			
9. Empathic distress	3.33	0.74	76	.23	.26*	.10	-.03	.23*	.22	.35**	.50***	1		
10. Self-compassion	2.20	0.54	87	-.13	-.38***	-.03	.16	-.17	.07	-.37**	-.50***	-.47***	1	
11. Emotional regulation difficulties	118.41	21.15	88	.01	.18	-.05	-.22*	.09	-.01	.50***	.51***	.52***	-.70***	1
12. Socially inhibited (FG)	10.00	3.62	88	.34**	.30**	.36**	-.07	.16	.30**	.38**	.63***	.25*	-.35**	.34**

Notes. CTQ = Childhood trauma questionnaire; BDI-II = Beck Depression Inventory; * p < .05, ** p < .01, *** p < .001

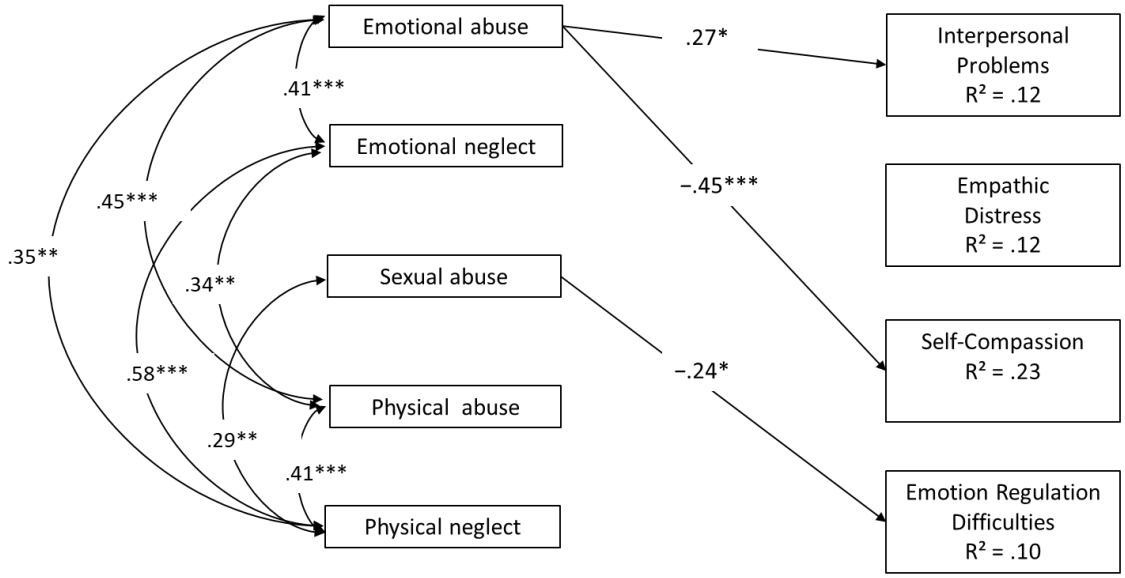

Fig. 1. Saturated model of childhood maltreatment types as predictors of interpersonal problems, empathic distress, self-compassion, and emotion regulation difficulties. Standardized coefficients are reported. Only significant paths are presented; ***p < .001, ** p < .01, *p < .05.

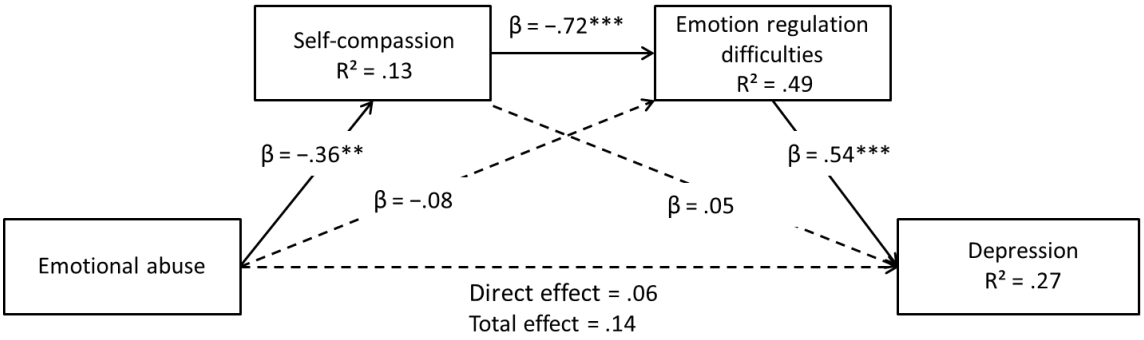

Fig 2. Indirect effect of emotional abuse via self-compassion and emotion regulation difficulties on depression severity. Standardized coefficients are reported. Solid paths are significant paths, dotted lines are not significant. ***p < .001, ** p < .01, *p < .05.

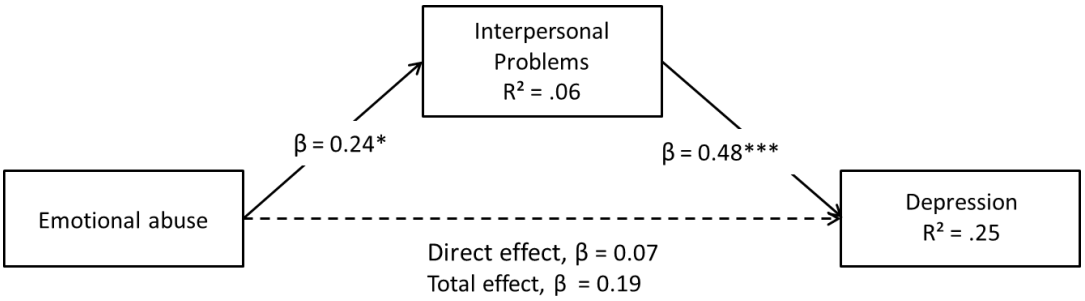

Fig 3. Indirect effect of emotional abuse via interpersonal problems on depression severity. Standardized coefficients are reported. Solid paths are significant paths, dotted lines are not significant. ***p < .001, ** p < .01, *p < .05.

Table 2

Pre-post effect sizes and bivariate pairwise correlations between pre-post change scores.

Variable	Pre-post ES Cohen´s d, 95 % CI	Pre-Post ES LOCF Cohen´s d, 95 % CI	ΔBDI	ΔIIP	ΔPD	ΔSCS
ΔBDI	-1.05 [-1.34, -.77]	-.90 [-1.15, -.65]				
ΔIIP	-.62 [-.88, -.36]	-.53 [-.76, -.31]	.30*			
ΔPD	-.21 [-.47, .05]	-.19 [-.41, .04]	.23	.44**		
ΔSCS	.57 [.32, .83]	.51 [.28, .73]	-.33*	-.63**	-.46**	
ΔDERS	-.66 [-.92, -.40]	-.57 [-.79, -.34]	.35*	.37**	.29*	-.59**

Notes. Δ signifies pre-post change in a variable. CI = confidence interval. ES = Effect size. LOCF = Last observation carried forward imputation used. BDI = Beck Depression Inventory; IIP = Inventory of Interpersonal Problems; PD = personal distress. SCS = Self-Compassion Scale. DERS = Difficulties in Emotion Regulation Scale. * p < .05, ** p < .01.

Table 3

Summary of regression results for variables predicting pre-post change in depression severity in a stepwise regression.

Predictor	β	β 95% CI [LL, UL]	Fit	Difference
Step 1			R^2 = .102*	
Baseline BDI	-0.32*	[-0.50, -0.10]		
Step 2a			R^2 = .189**	Difference to step 1:
Baseline BDI	-0.31*	[-0.50, -0.08]		ΔR^2 = .086*
Change in IIP	0.29*	[0.05, 0.52]		
Step 2b			R^2 = .188**	Difference to step 1:
Baseline BDI	-0.29*	[-0.51, -0.10]		ΔR^2 = .085*
Change in SCS	-0.29*	[-0.53, -0.08]		
Step 3			R^2 = .213**	Difference to step 2a:
Baseline BDI	-0.30*	[-0.49, -0.08]		ΔR^2 = .024
Change in IIP	0.19	[-0.13, 0.48]		Difference to step 2b:
Change in SCS	-0.19	[-0.48, 0.10]		ΔR^2 = .025

Notes. β indicates the standardized regression weights. LL and UL indicate the lower and upper limits of a bootstrapped confidence interval, respectively. BDI = Beck Depression Inventory; IIP = Inventory of Interpersonal Problems; SCS = Self-Compassion Scale. * p < .05, ** p < .01.

Declaration of interests

The authors have no conflict of interest to declare.

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Anhang C: Curriculum Vitae und Publikationsverzeichnis

Curriculum Vitae und Publikationsverzeichnis sind nicht Teil der Veröffentlichung

Anhang C: Eidesstattliche Erklärung

Ich versichere, dass ich meine Dissertation mit dem Titel

„Auswirkungen verschiedener Formen der Kindesmisshandlung auf die depressive Symptomatik im Erwachsenenalter: Die Rolle potenzieller Mechanismen“

selbständig und ohne unerlaubte Hilfe angefertigt habe. Ich habe mich dabei keiner anderen als der von mir ausdrücklich bezeichneten Quellen und Hilfen bedient.

Die Dissertation wurde in der jetzigen oder einer ähnlichen Form noch bei keiner anderen Hochschule eingereicht und hat noch keinen sonstigen Prüfungszwecken gedient.

Marburg, den 09.11.2020 Nele Struck